



San Francisco City Planning Commission

Environmental Impact Report

101 CALIFORNIA STREET

Draft

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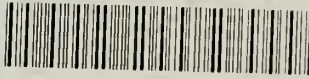


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San Francisco City Planning Commission

Environmental Impact Report

101 CALIFORNIA STREET

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Review Officer, 45 Hyde St., San Francisco, CA 94102

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I. SUMMARY

A. PROJECT DESCRIPTION

The proposed project site encompasses Assessor's Block 263, bounded by California, Davis, Pine, and Front Sts. The 1.3 million gross sq. ft. (above ground) project would consist of two underground parking levels; a seven-story, 95-ft. high, triangular base building; a 48-story, 600-ft.-high, faceted, cylindrical tower; and a plaza with two landscaping planters. The base structure would extend along the entire 275-ft. frontages of Pine and Front Sts. The plaza, including landscaping planters, would extend along California and Davis Sts. The 190-ft. diameter tower would have a 95-ft. high, glass-enclosed lobby. The first floor of the building would contain retail, restaurant and commercial space, and the second floor would contain commercial/office space; the remainder of the above-ground space would be used as offices.

Demolition of the existing buildings on the site, proposed to begin in 1979, would take about three months. Excavation and construction would then continue for approximately 27 months until project completion and occupancy in late 1981.

The principal tenant would be Intel Corporation, occupying about one-third of the leasable space. Approximately 3,700 persons would be employed in the building, as compared with about 100 persons currently employed on the site.

B. ENVIRONMENTAL EFFECTS

The project would comply with zoning use and height limitation requirements. As the diagonal of the cylindrical tower has been interpreted by the Acting Zoning Administrator to be equivalent to the length, the structure would exceed the maximum permitted length and a Conditional Use permit would be

required. The scale, arcade-like window treatment, and surface materials of the base building and the orientation of the plaza are intended by the project architects to complement older neighboring structures and to reinforce the quasi-plaza across California St. The project plaza would have two tiered landscaping planters; it would not have benches or other street furnishings. The orientation of the plaza to the north of the building would result in its being partially shaded most of the day during most times of the year. The project would add to the cumulative visual impact on the skyline of development under construction and proposed for the Downtown business district.

Construction and operation of the project would increase demands for water, sewer services, solid-waste disposal, and police and fire protection. The demands could be met by the existing systems and would not require additional personnel, equipment or facilities. Extension of telephone conduit to the site would require the nighttime disruption of traffic on one and one-half blocks of Pine and Front Sts. for 90 days.

The project would provide about 850 person-years of construction employment and approximately 3,700 persons would be employed at the completed project. Thirty-three businesses employing an estimated 100 persons would be displaced from the project site. The net increase over existing total composite property tax revenues to San Francisco would be over \$500,000. The project could contribute to a short-term cumulative oversupply of office space in the 1980's.

Construction truck traffic would temporarily increase traffic on the access streets and haul routes, particularly during peak hours. Project-generated traffic would cause increases in traffic on adjacent streets ranging from 1% on Pine and Market Sts. to 30% on Front St. where the parking garage entrance and exit would be located. Itel would institute a "flextime" system to spread the commuting peak period and would preferentially allot parking spaces to carpool vehicles to encourage carpooling. The project would contribute to cumulative impacts on regional air quality, local traffic volumes and transit ridership due to development now under construction and proposed for the Downtown business district.

Pile driving and the operation of construction equipment could temporarily raise the L_{50} noise level by 16 dBA along California and Davis Sts. and 18 dBA across Pine St. from the site. These effects would be reduced by using sound attenuation techniques.

Project implementation would result in the consumption of fossil fuels and electricity during construction and operation. The amount of energy required to operate the building would be about 8% less than the maximum allowed by State Energy Commission standards.

Approximately 65,000 cu. yds. of earth would be removed. Planned seismic engineering of the structure based on the standards of the seismic design code of the Structural Engineers Association of California would minimize earthquake hazards to the public and building employees.

C. ALTERNATIVES TO THE PROPOSED PROJECT

The objectives of the proposed project are to provide high quality office space in Downtown San Francisco for ITEL Corporation and other tenants and to develop ground floor retail and commercial space to serve Downtown employees. For this reason, alternatives to the proposed project which consist of office and retail/commercial development on the site, in accordance with Section 210.3 of the City Planning Code, have been considered.

The no-project alternative would preserve options for future development at the site; the comparatively low value of the improvements would return the City a low tax revenue and the property owner a low rent.

Modifications of the project as proposed include: a tower with three setbacks which would reduce the apparent bulk of the top of the tower; and a building the same as the proposed project, except that the plaza would be in the southeast half of the block, thus allowing greater penetration of sunlight to the plaza during summer morning and mid-day hours, but causing increased shading of the Two Embarcadero Center podium level at mid-day in spring and fall. The towers in both these alternatives would exceed the bulk provisions

of the 600-I Height and Bulk District according to the Acting Zoning Administrator, and would require a Conditional Use permit.

Alternatives could be developed which would be similar to the proposed project, but would conform to the bulk provisions. Three are considered: a flat-sided octagonal tower, containing 3% fewer gross sq. ft. than the project; a faceted octagonal tower, containing 9% fewer gross sq. ft.; and a rectilinear tower, containing 19% fewer sq. ft. The floor areas of these alternatives could be raised to approach the maximum allowable Floor Area Ratio, including bonuses by adding floors to the base building.

The site could be developed with 2 or more buildings without a plaza. A 2-building, 2-tower design, containing a total of 17% fewer gross sq. ft. is discussed. Views would be blocked from the southwest and northeast by the 2 towers and winds of California and Davis Sts. would be increased.

An alternative which would conform to the proposed Initiative to Limit the Height and Floor Area Ratios of Buildings in Downtown San Francisco could be developed on the site. At the Basic Floor Area Ratio of 8 to 1, such a design would contain 54% fewer sq. ft. than the proposed project. One such design would consist of a square 260-ft.-high building at Front and Pine Sts. and an L-shaped, stepped, 130-ft.-high building at California and Davis Sts. This design would have the least effect on views of any of the alternatives.

II. PROJECT DESCRIPTION

A. OBJECTIVES OF THE PROPOSED PROJECT

Gerald D. Hines Interests, developer, builder, and owner of buildings in cities in the United States, proposes to construct an office building in Downtown San Francisco. The project, designed by Philip Johnson and John Burgee of Johnson/Burgee Architects, New York, is intended by its sponsors to be a functional part of the Downtown Office District which is described in Section 210.3 of the City Planning Code (Part II, Chapter II of the San Francisco Municipal Code) as "playing a leading national role in finance, corporate headquarters and service industries, and serving as an employment center for the region", and which consists "primarily of high quality office development". The District is one in which unrelated uses are excluded "in order to conserve the supply of land in the core and its expansion areas for further development of major office buildings". Intel, a San Francisco-based corporation, would be the principal tenant, occupying approximately 30% of the 1.3 million sq. ft. proposed.

B. LOCATION OF THE PROPOSED PROJECT

The proposed building would be located in Assessor's Block 263, which is bounded by California, Davis, Pine, and Front Sts. (see Figure 1). The project would occupy the entire block which contains 75,625 sq. ft. and is currently divided into ten parcels.

The project site fronts on California St. which is served by a cable car line and is the widest street in the Financial District north of Market St. The southeast corner of the project abuts Market St. and the Embarcadero Station of the Market St. subway which serves the Bay Area Rapid Transit system (BART) and the future Muni Metro light rail system. The site is served by Muni buses on Davis and Market Sts. and is within two blocks are other regional transit



FIGURE 1 SITE LOCATION IN RELATION TO THE BAY REGION AND TO DOWNTOWN SAN FRANCISCO

systems including the Golden Gate Transit bus lines, SamTrans, A-C Transit, and the Marin ferry boats. The site is one block from freeway ramps connecting with the San Francisco-Oakland Bay Bridge (I-80) and the Bayshore Freeway (U.S. 101).

C. SITE AND BUILDING PLAN

The project would consist of a seven-story (approximately 95 ft.), triangular base building covered with light-colored, natural stone which would occupy one-half the site, extending along the Front and Pine St. frontages, and a 48-story, 600-ft.-high cylindrical tower in the southeastern corner of the block. One half of the 190-ft.-diameter tower would rise above the base building (see Figure 2). The lowest seven floors of the other half of the tower would be cut away to provide for a glass-enclosed lobby paved with light-colored natural stone, with the tower supported on exposed, aluminum-clad columns (see Figure 3, p. 9). The clear glass ceiling of the lobby would slant at a 45-degree angle upwards toward the triangular base of the building. The ceiling of the cut-away tower notch above the lobby would be light gray. The California St. and Davis St. frontages of the site would be a plaza surfaced in natural stone. The plaza would visually flow into the glass-enclosed 95-ft.-high lobby of the office tower (see Figure 4, p.10). There would be two tiered landscaping flower planters facing California St.; the larger in area would rise to a height of 8 ft. 4 in., and the smaller at the northeast corner of the site would rise to a height of 10 ft. Each tier would be 1 ft. 8 in. high and would be planted on all sides with vines and flowering plants which would be changed quarterly. Seating would be provided around the planters.

The cylindrical tower would have a faceted surface, divided into alternate vertical strips of coated light-gray glass and light-colored natural stone. The top floors of the tower would be set back about 5 ft. at the 40th and again at the 45th floors. The surfacing material on each facet would change from glass to stone or stone to glass at the setbacks. The circular plane would be flattened at the major entrance to the lobby from California St. Other entries to the plaza lobby would be on the southeast side on Davis St., opposite the main entrance, and on Pine St. (see Figure 4, p.10), with an

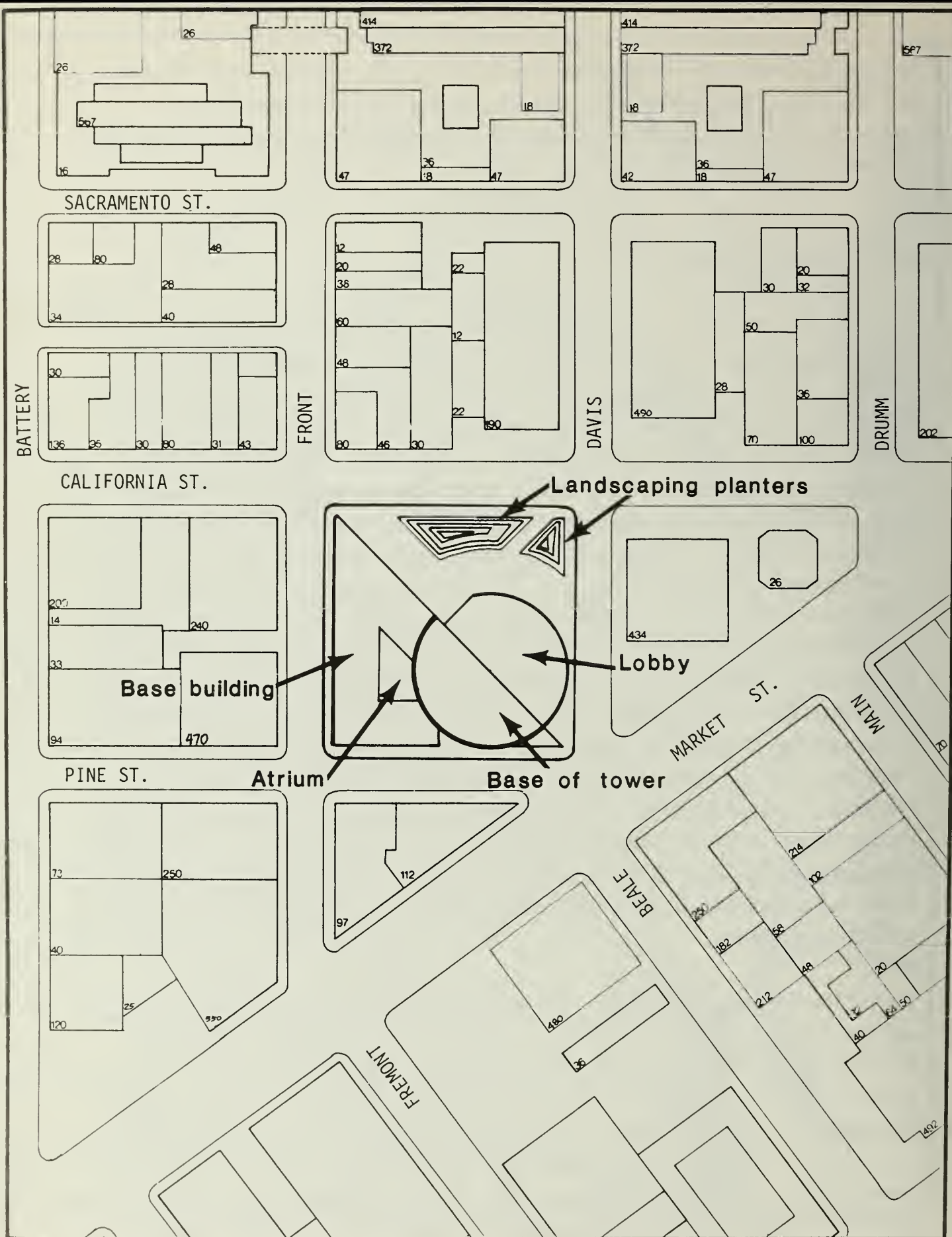


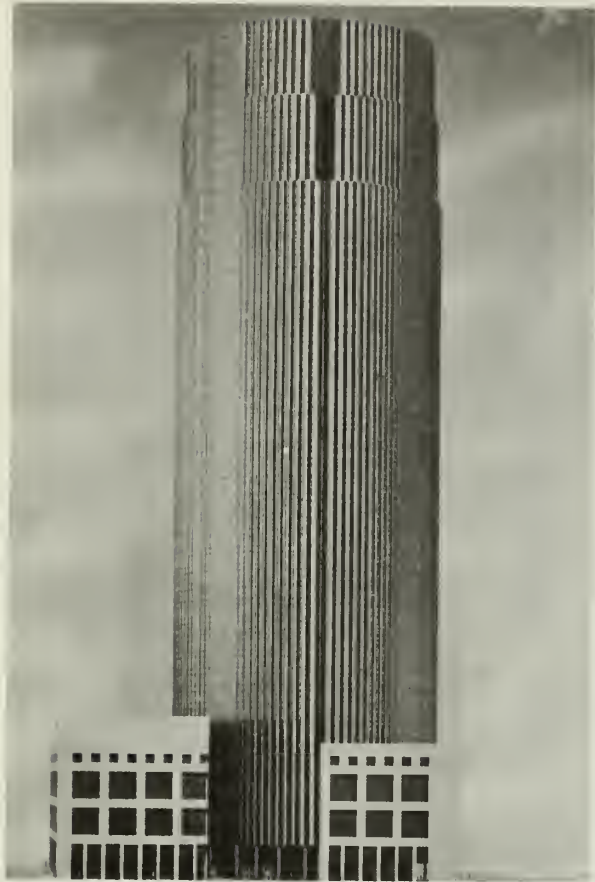
FIGURE 2 SITE PLAN



NOTE: Planters are not to scale

0 50'

FIGURE 3 NORTHEAST ELEVATION

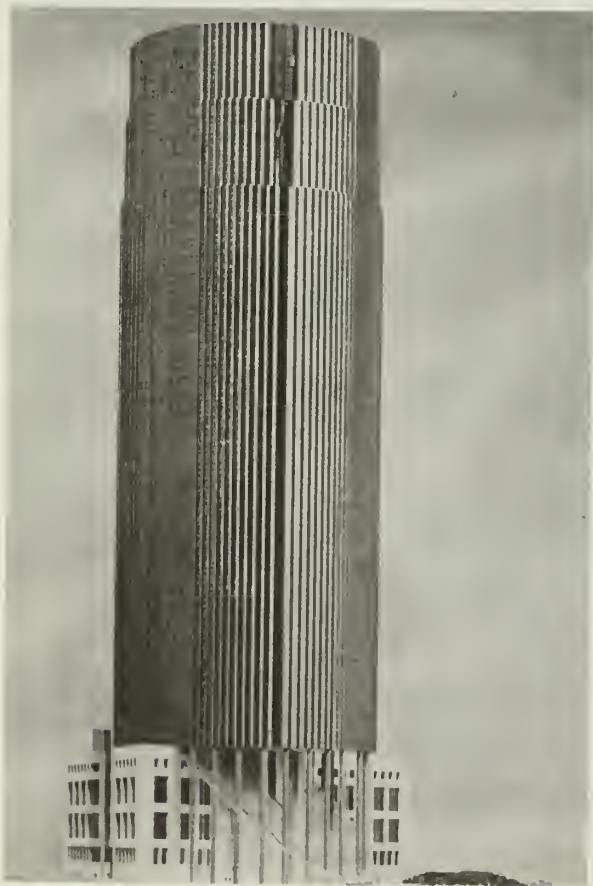


A. Pine St. Elevation

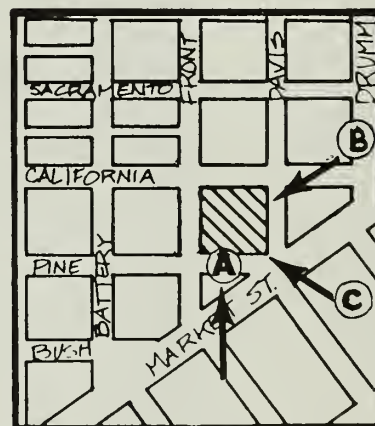


B. Project Lobby and Plaza viewed from the Mutual Benefit Life Building across Davis St.

NOTE: Planters are not to scale.



C. Project from Market and Davis Sts.



LOCATIONS OF VIEWS

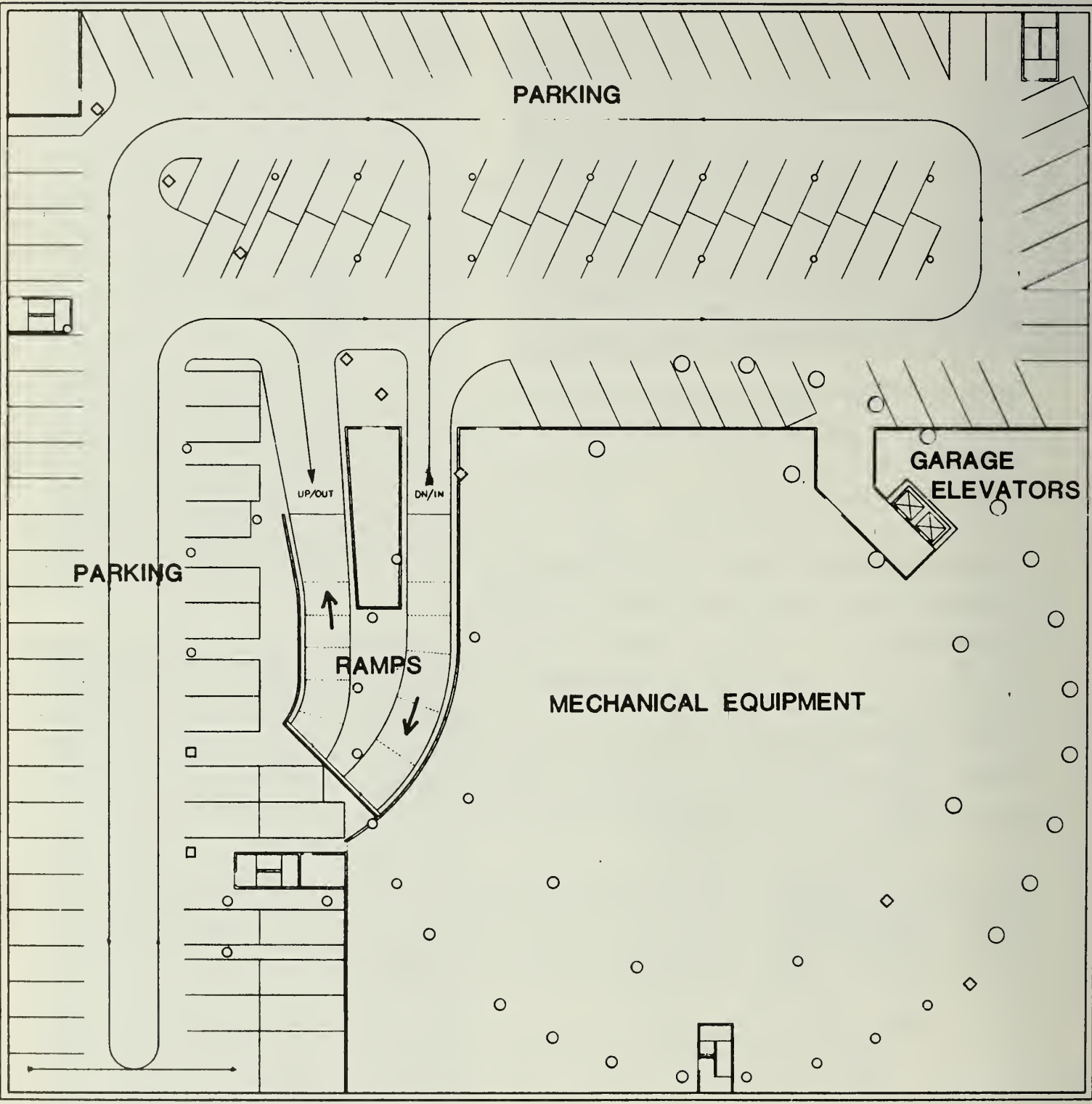
FIGURE 4 VIEWS OF PROJECT MODEL

angular penetration of the triangular base building through to the glass-enclosed lobby. An entrance lobby with an escalator to rental space on the second floor would be located at the Front and California Sts. corner of the building; this lobby would not have doors and would be open to pedestrian traffic from the plaza to Front St.

On the third floor, the triangular base building would have an atrium west of the tower which would extend upward to the seventh or top floor of this building. The walls of the sixth and seventh floors within the atrium would be set back several feet from the walls of the third through fifth floors to allow greater light penetration.

Below ground there would be about 91,400 sq. ft. of parking in two levels, accommodating about 260 automobile spaces, which would be accessible by ramps leading to and from Front St. About 60 spaces (not more than 25%) would be reserved for short-term parking. The Front St. frontage would have five off-street, truck-loading docks, north of the ramps leading to the two underground parking levels, which would connect with two freight elevators which would serve the entire complex. Elevators serving the office floors and the parking levels would be in banks in the lobby. Approximately 24,700 gross sq. ft. of retail, restaurant, and commercial space would be located on the first floor and about 30,900 gross sq. ft. of commercial/office space would be located on the second floor. The third through 48th floors would contain about 1,233,000 gross sq. ft. of office space (see Figures 5 through 11, pp. 12 through 18, for representative floor plans).

The tower, from the 8th through the 48th floors, would contain a total floor area of 1,063,200 gross sq. ft. The base building would contain 242,600 gross sq. ft., making a total, above-ground gross floor area of 1,305,800 sq. ft.



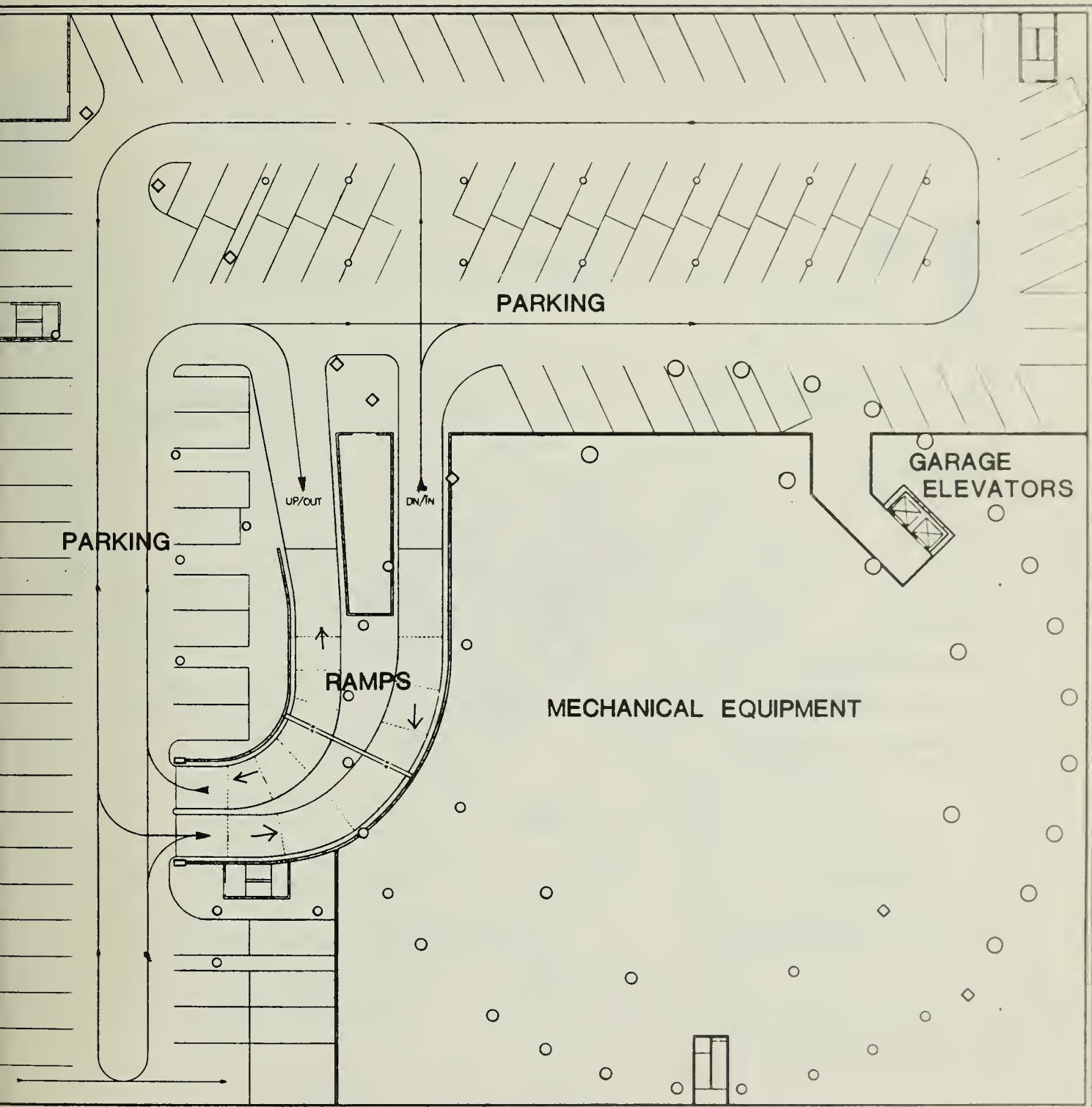
Parking layout is conceptual only

○□ Columns of various sizes



Source - Johnson/Burgee Architects

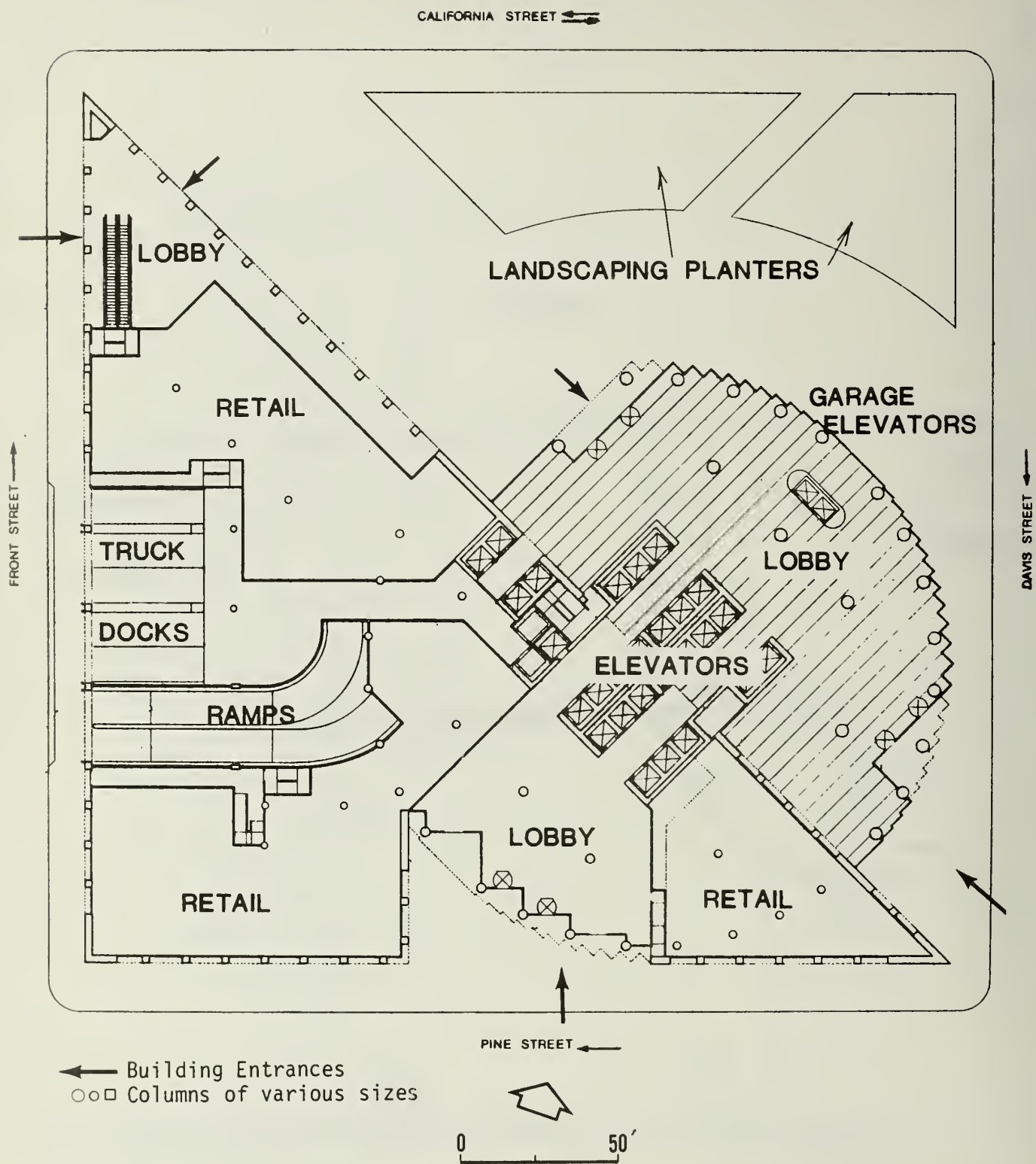
FIGURE 5 LOWER LEVEL NO. 2



Parking layout is conceptual only

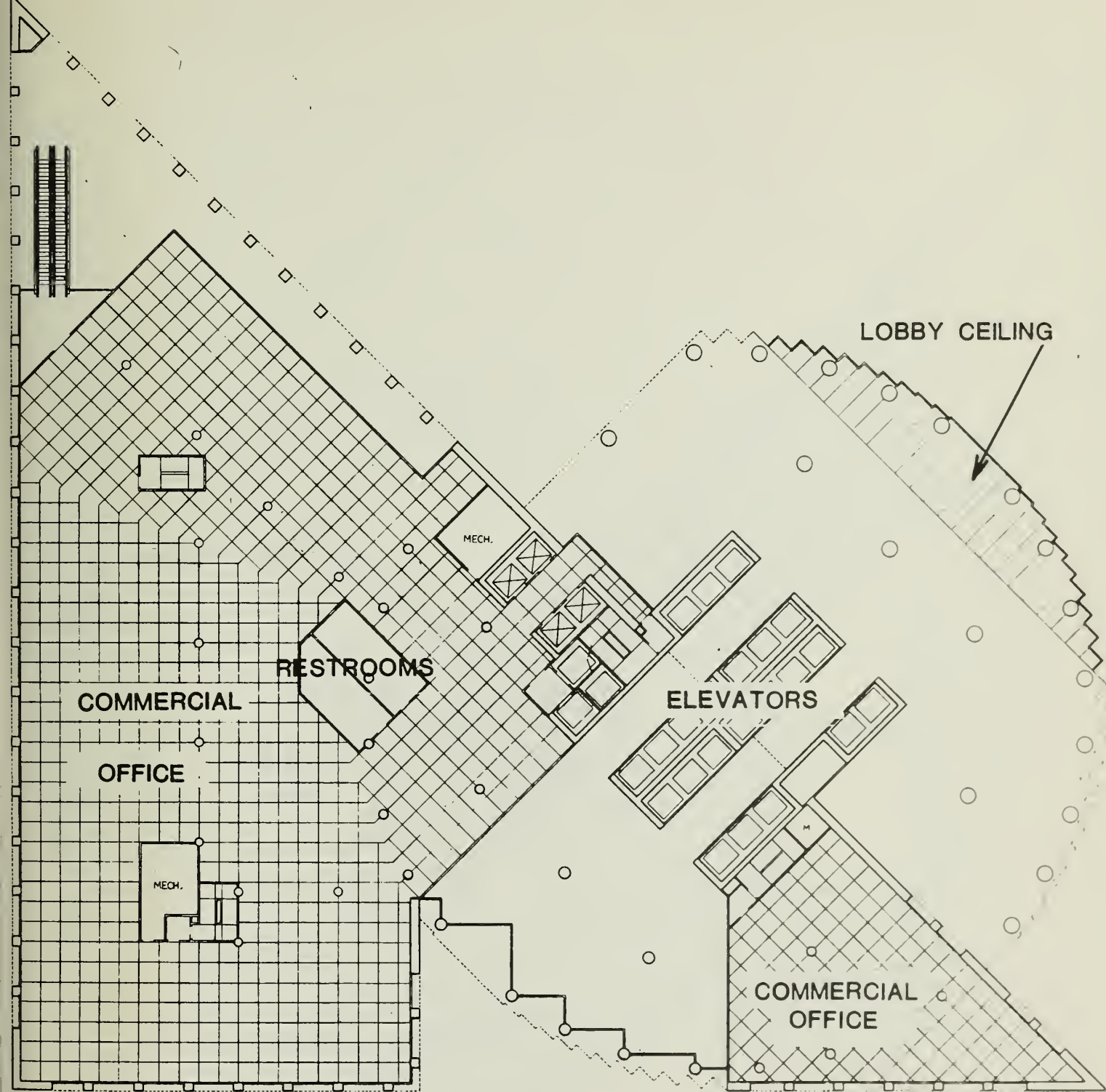
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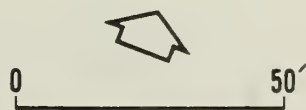


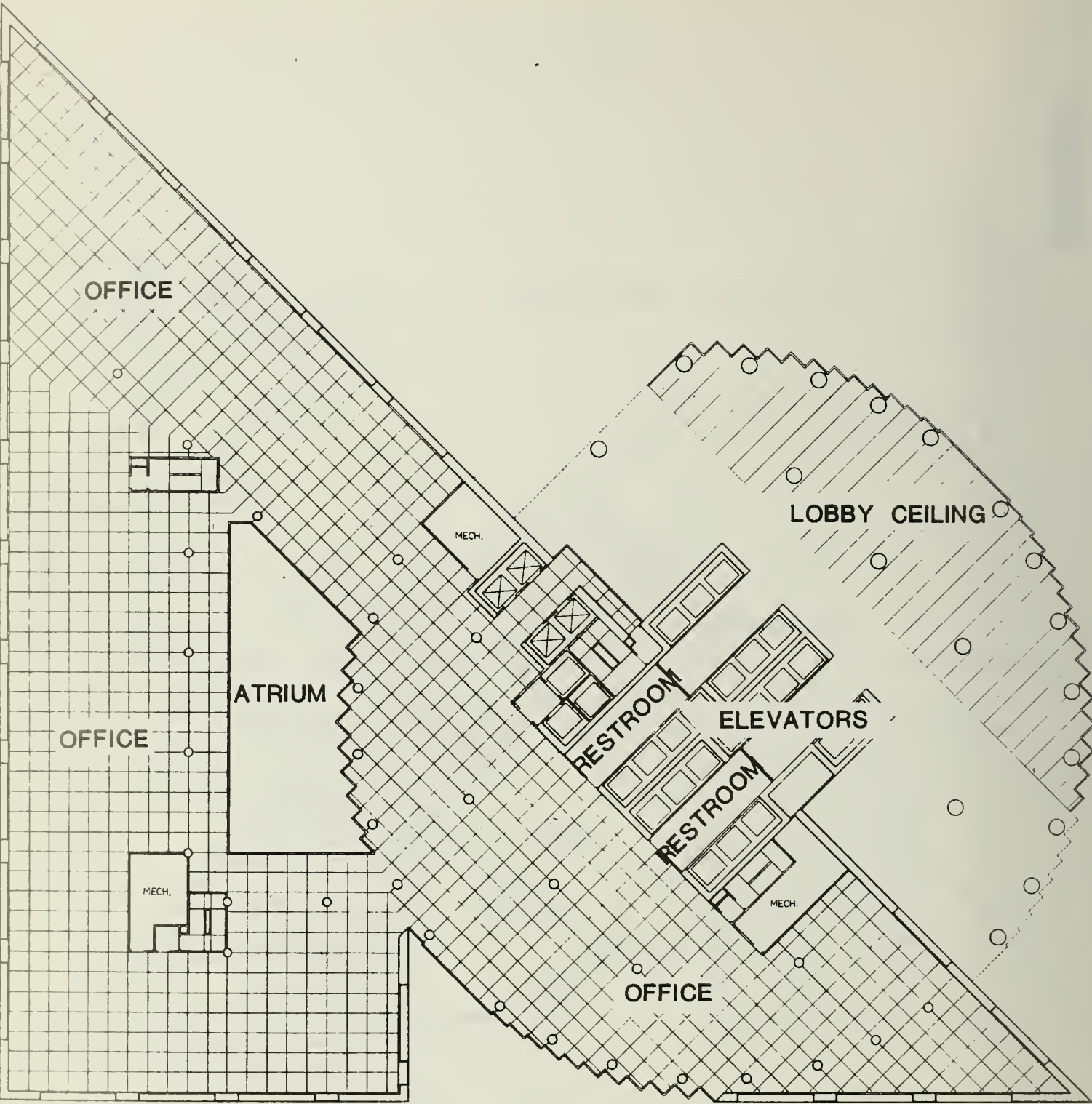
Source - Johnson/Burgee Architects

FIGURE 7 GROUND FLOOR PLAN



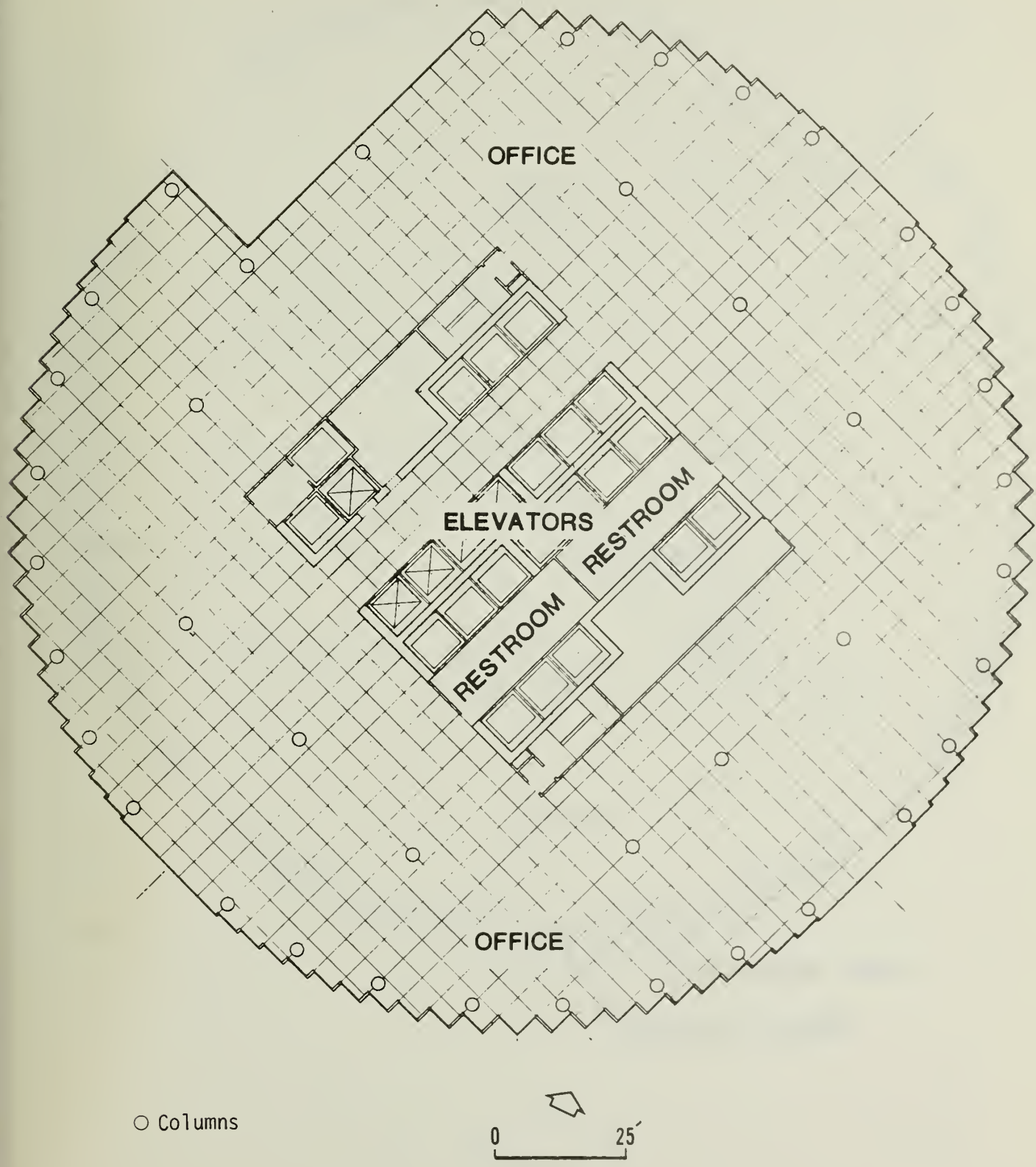
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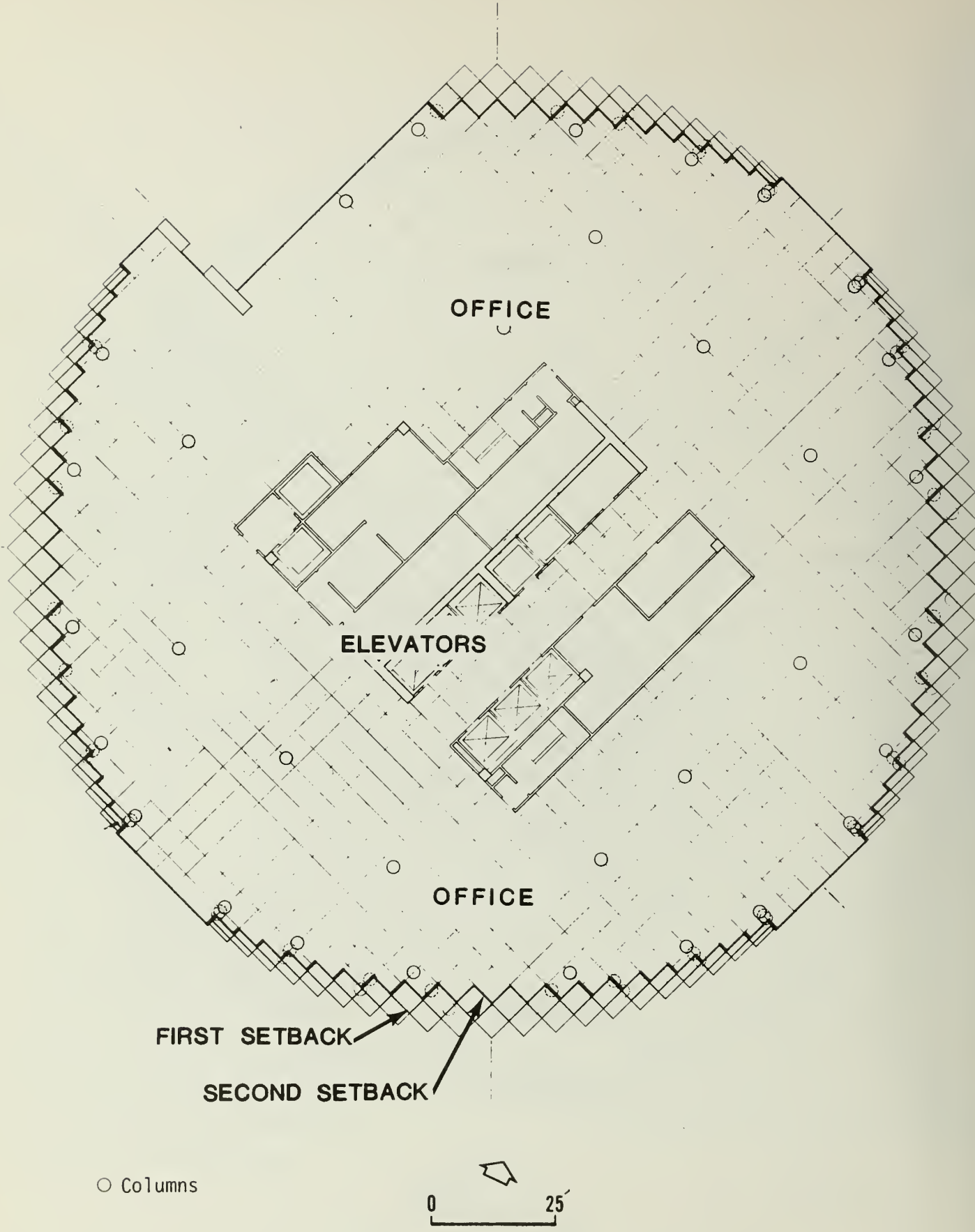
○ □ Columns of various sizes





Source - Johnson/Burgee Architects

FIGURE 10 TYPICAL LOW RISE FLOOR



Source - Johnson/Burgee Architects

FIGURE 11 46th FLOOR

D. PROJECT SCHEDULE, REQUIRED ACTIONS, AND COSTS

Detailed design of the proposed project is scheduled by the sponsor for completion in 1979. Certification of the Environmental Impact Report and subsequent action by the City Planning Commission on a conditional use application for an exception to the maximum length permitted by the bulk regulations of the City Planning Code and a discretionary review of the project because of its proximity to Market St. (see Figure 12 and Section IV.A, p. 56) are expected to be completed in 1979. Demolition of the buildings on Lots 2, and 4 through 10, would begin in 1979, after EIR certification, followed by construction of the new project (see Table 1). Occupancy is scheduled for late 1981. The cost of construction is estimated to be \$65 million in 1978 dollars.

TABLE 1: SCHEDULE OF CONSTRUCTION

<u>Building Activity</u>	<u>Approx. Duration</u>
Demolition	3 months
Excavation	2 months
Building Structure (Steel)	13 months
Architectural and Interior Finishes	12 months

III. ENVIRONMENTAL SETTING

A. LAND USE AND ZONING

LAND USE

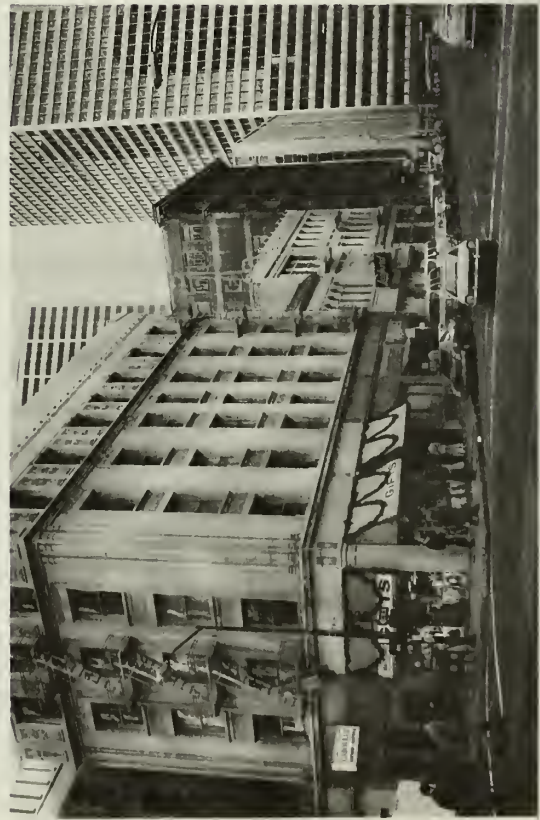
The southeast corner of the project site abuts Market St. (see Section III.B, p. 28). The buildings on the blocks surrounding the site primarily contain offices, or offices with retail uses on the ground floor (see Figure 13 and Figure 14, p. 25). Directly north of the site in Assessor's Block 236 at California and Davis Sts. is the 14-story (190 ft.) 100 California St. building; the western portion of this block is occupied by 1- to 6-story retail and office structures. The 38-story (490 ft.) Union Bank building is northeast of the site at California and Davis Sts. in Assessor's Block 235. In the remainder of the block, the east is occupied by 1- to 8-story retail and office buildings.

The block east of the project site (Assessor's Block 264) includes the 32-story (434 ft.) Mutual Benefit Life building and a freestanding 2-story Crocker Bank branch. The triangular block south of the site (Assessor's Block 265) contains an 8-story retail and office structure and a 9-story office structure. On the block southwest of the site (Assessor's Block 266) is Mechanics Memorial Plaza at Market and Battery Sts.; 444 Market St., a 38-story (550 ft.) office structure to be completed by 1980; and a 4-level parking structure on Battery St. There are also retail and office structures, including the 19-story (250 ft.) 111 Pine St. building completed in 1965, a 5-story structure at Pine and Battery Sts., and the 11-story (120 ft.) 22 Battery St. building.

The block west of the project site (Assessor's Block 262) includes the 33-story (470 ft.) 100 Pine St. building, completed in 1972; the 14-story (200 ft.) Industrial Indemnity Company building at California and



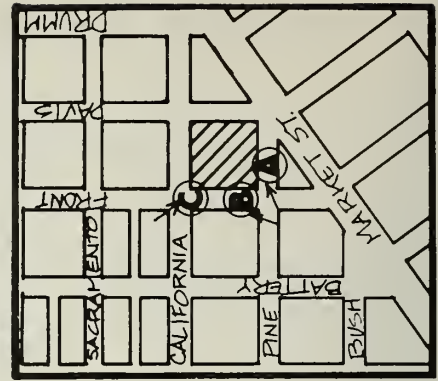
A. Pine St. from Front St. to Market St.
64 Pine St. and 2 Pine St. at left



C. Front St. from California St. to Market St.
111-149 California St. at left. One
Metropolitan Plaza in background.



B. Front St. from Pine St. to California St.
64 Pine St. at right. Alcoa Building and
Embarcadero Center in background.



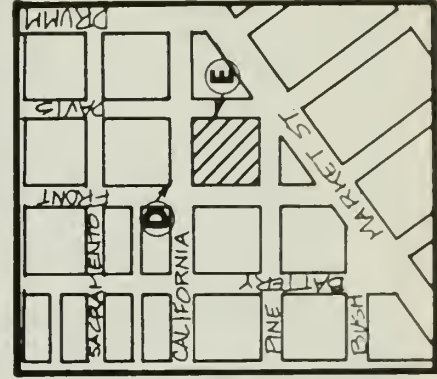
LOCATIONS OF VIEWS



D. California St. and Front St. 111-149
California St. in center. Mutual Benefit
Life building (One California St.) at left.



E. California and Davis St.



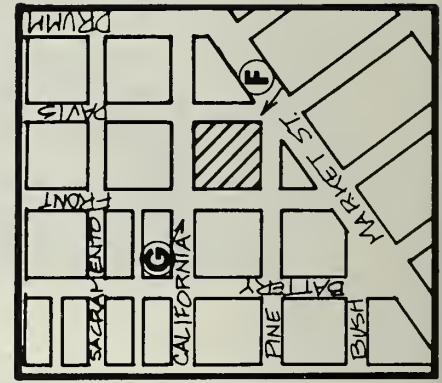
LOCATIONS OF VIEWS



F. Davis St. facade of Two Pine St.
(Spreckels Building.)
100 Pine St. in background.



G. California St. from west of Front St.
111-149 California St. in center.
Mutual Benefit Life Building at left.
P.G&E building in right background.



LOCATIONS OF VIEWS

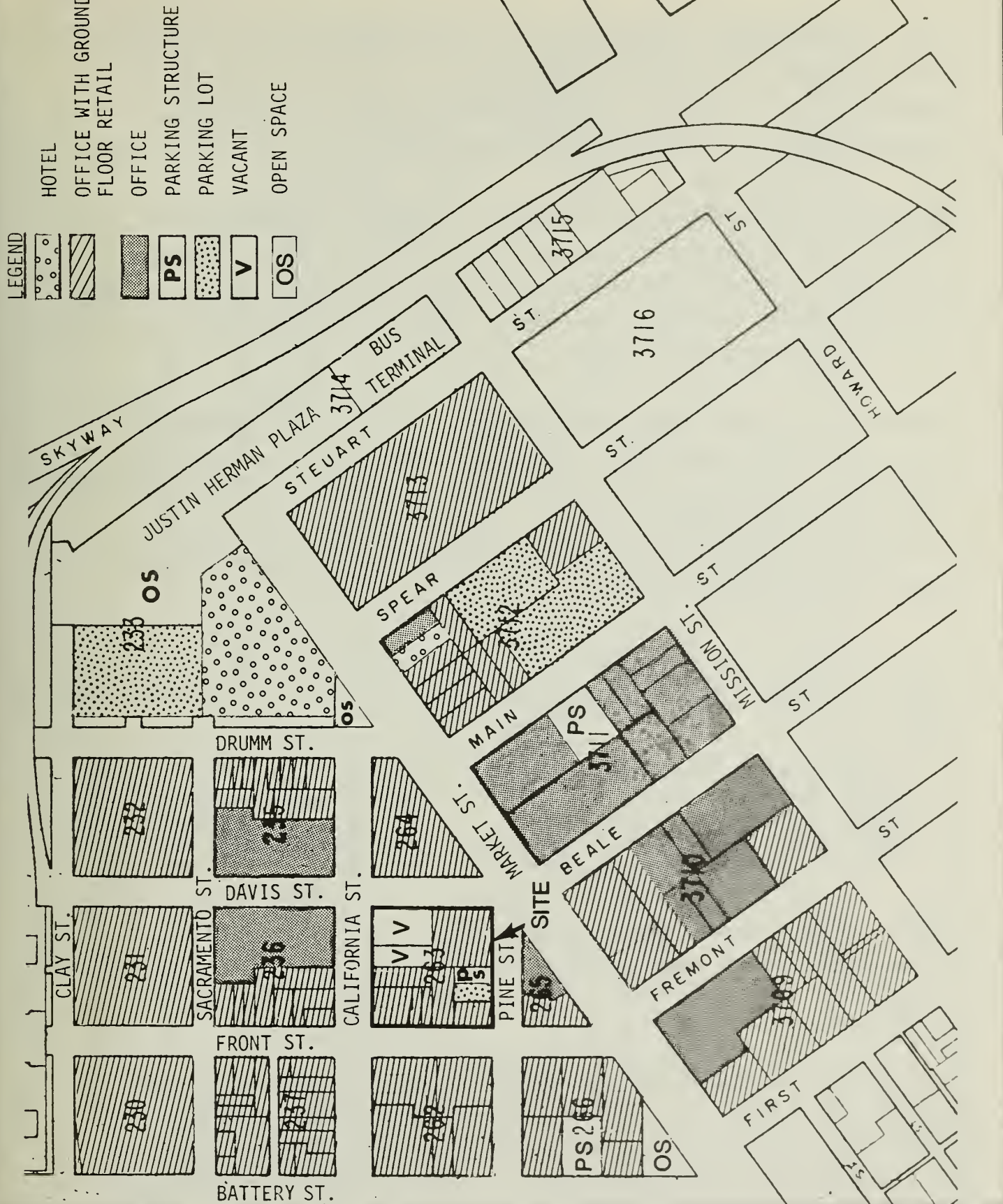


FIGURE 14
EXISTING LAND USE ON THE
SITE AND IN THE VICINITY

Battery Sts.; a 7-story office structure at Pine and Battery Sts.; and the 17-story (240 ft.) 201 California St. building now under construction. Northwest of the site (Assessor's Block 237), the block is occupied by a mixture of retail and office structures ranging in height from 2 to 11 stories.

The project site is occupied by 5 structures ranging from 2 to 9 stories, and a 1-story parking structure; a vacant lot on Pine St. is used for parking. The northeast portion of the block is vacant and fenced. The 49,000 sq. ft. 101 California St. building, which formerly occupied this site, was demolished in 1974 after a destructive fire.

Restaurants, discount clothing and other retail stores occupy ground floor space in the existing buildings on the site. About 25% of the upper floors of 149 California St. are currently rented. All other upper story office or storage space on the block is vacant. Table 2 lists the buildings on the site and approximate rentable square footage of each. Existing land use on the site is shown in Figure 14, p. 25.

TABLE 2: EXISTING RENTABLE SPACE ON THE SITE

2 Pine Street (9 stories plus single-story garage)	79,500 sq. ft.
63 Pine Street (7 stories)	27,300 sq. ft.
122-124 Front Street (3 stories)	20,000 sq. ft.
136-142 Front Street (2 story and 3 story buildings)	8,500 sq. ft.
111-149 California Street (5 stories)	<u>37,800 sq. ft.</u>
	TOTAL 173,100 sq. ft.

SOURCE: Coldwell Banker Commercial Brokerage Co.

ZONING

The City Planning Code zoning classification for the project site is C-3-0, Downtown Office District (see Figure 15). Office and retail uses are permitted in this district with a basic permitted Floor Area Ratio of 14 to 1, i.e., buildings may have a floor area up to 14 times the area of the site.

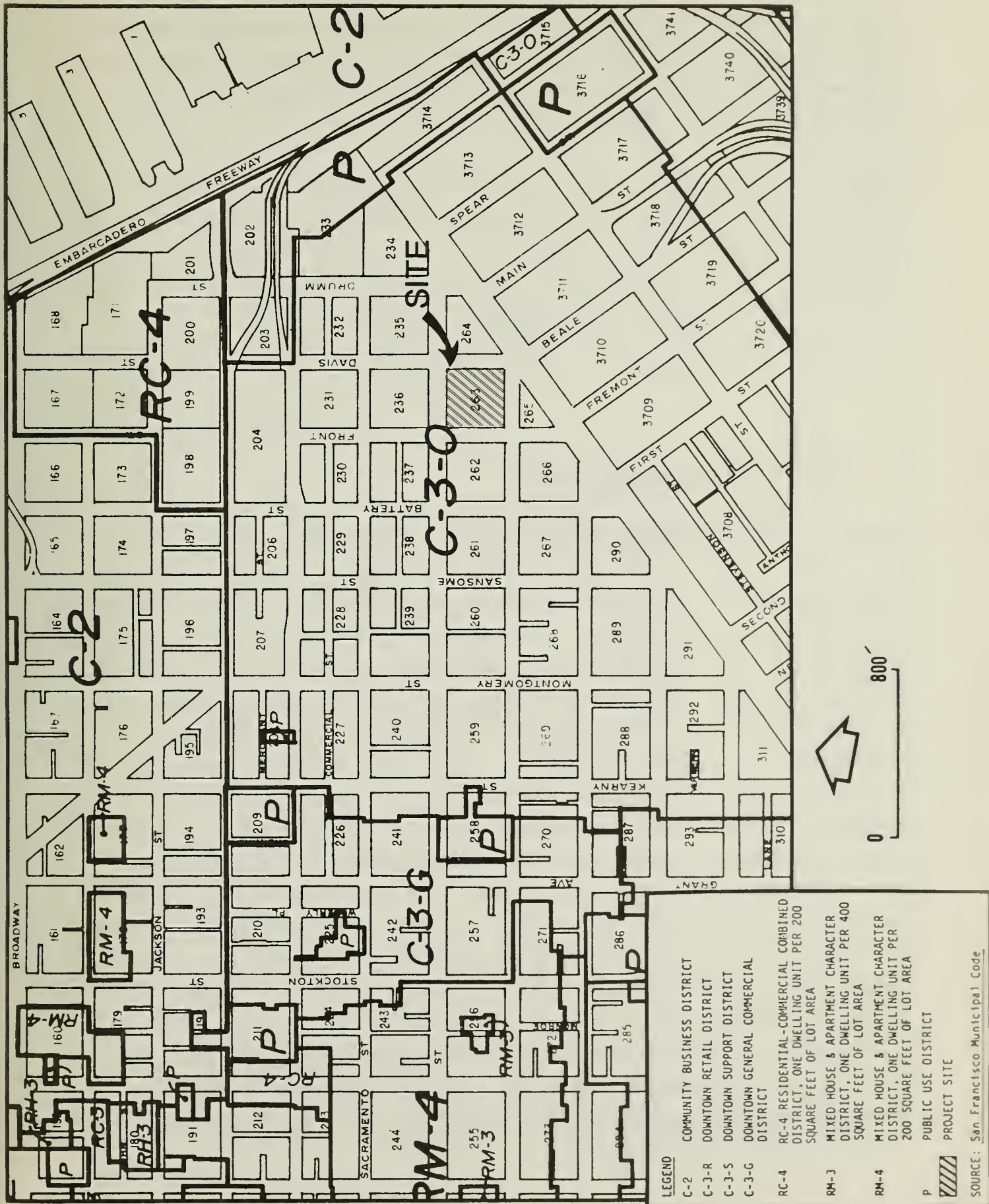


FIGURE 15 EXISTING PLANNING CODE
USE DISTRICTS

The site is also in the 600-I Height and Bulk District (see Figure 16) in which the maximum permitted height is 600 ft. Above a height of 150 ft. the maximum permitted building length is 170 ft. and the maximum permitted diagonal dimension is 200 ft.

No off-street parking is required in the C-3-0 district. Section 116.2(c) of the City Planning Code permits a maximum of 7% of the gross floor area to be used for accessory parking. Section 152 of the City Planning Code requires off-street loading docks at the rate of 3 spaces for the first 500,000 gross sq. ft. of office space, plus 1 space for each additional 400,000 gross sq. ft. Off-street loading space is required for between 10,001 and 60,000 gross sq. ft. of retail space.

B. URBAN DESIGN AND VISUAL ASPECTS

MARKET ST. BEAUTIFICATION AND CALIFORNIA ST. CONSTRUCTION

The project site is a pivotal location in the Market St. corridor as Davis and Pine Sts. intersect at Market St. opposite Beale St. Since the voters in 1962 approved the construction of a two-level subway under Market St. for use by the Bay Area Rapid Transit System (BART) and by the Muni Metro (light rail vehicle lines), and in 1968 authorized a \$24.5 million bond issue to reconstruct and redesign the surface of the street, Market St. and areas adjacent to it have undergone a deliberate and designed visual change. On Market St. sidewalks have been widened from 22 ft. to 35 ft., paved with red brick, lined with sycamore trees, and embellished with specially designed street furniture and signs. The roadway has been narrowed to 50 ft., and at some intersections on the north side of the street, portions of the roadways of side streets have been closed to vehicles and incorporated into pedestrian areas. The public improvements have stimulated private development in the Market St. corridor, and some areas have been made more spacious, in conjunction with new construction, by the widening of sidewalks onto private property and by the creation of plazas. This has been done at the Mutual Benefit plaza, across Davis St. from the project site, in conjunction with the building at No. 1 California St.

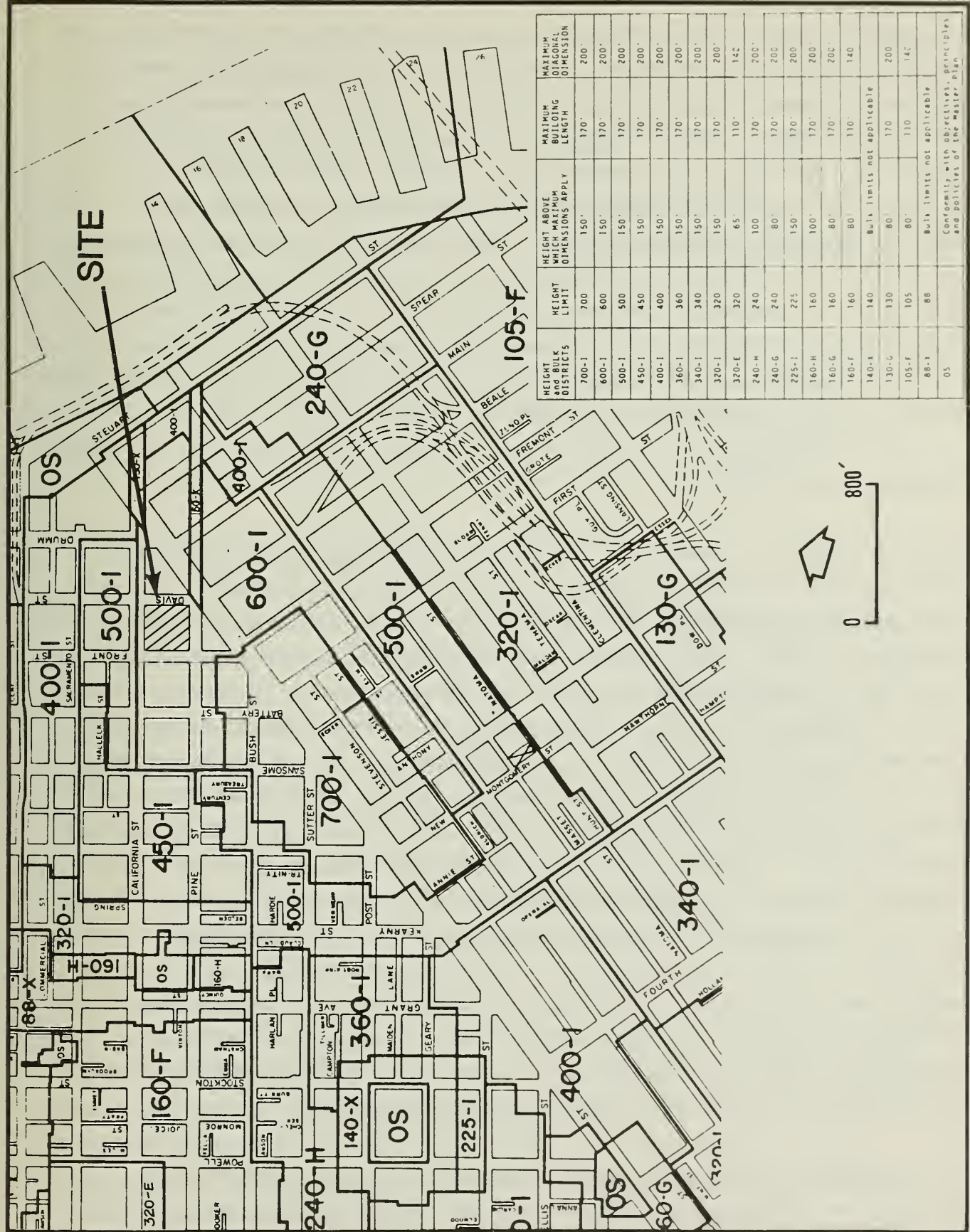


FIGURE 16 EXISTING PLANNING CODE
HEIGHT AND BULK DISTRICTS

The project site is the last full block of low- and medium-rise buildings adjacent to Market St. in the Financial District to be proposed for rebuilding with an integrated design for the entire block. The site is currently in a transitional state: one building was destroyed by fire and razed, and the others are vacant above the ground floor. Old wall signs on remaining buildings which have been exposed by the partial demolition which has occurred, and large billboards offer a visual contrast to the new construction in the vicinity which has been stimulated by the Market St. subway and beautification programs. Similarly, California St. has undergone a renovation and rebuilding along most blocks between Kearny and Market Sts. The project site, on the south side of the 100 block of California St., is the last on the south side to be proposed for rebuilding.

ARCHITECTURAL RESOURCES

On the project site, Assessor's Block 263, one building was noted in the parcel-by-parcel citywide inventory of architecturally significant buildings conducted by the Department of City Planning in 1974, 1975, and 1976 (see Appendix A, p.191). The ratings in the inventory ranged from a low of "0" to a high of "5" and buildings were also classified by style. 64 Pine St. (see Figure 13a, Photo A, p. 22), a 7-story building on the northeast corner of Pine and Front Sts., was rated "1" and classified as a "classical root" style with "vernacular variations". Opposite the site, the 33-story Pacific Insurance Building at 100 Pine St., built in 1972, is rated "1" and classified as the "International-Miesian" style. On the north side of California St., the three old buildings west of 100 California St. opposite the site are rated "1" (134 California), "0" (150 California), and "2" (160 California). 134 California St. is classified as a "commercial utilitarian" version of the "modern root" style. 150 California is classified as a variation of the "California Traditional" style. 160 California St. is classified as a "renaissance" version of the "classical root" style (San Francisco Department of City Planning, Map titled 1976 Architectural Inventory).

The San Francisco Heritage Foundation has just completed, but not yet published an architectural survey rating all downtown buildings from "A" to "D" (see Appendix B, p.192). At the project site, 2 Pine St. (see Figure 13a,

Photo A, p. 22) is rated "B" in the survey, indicating an "important landmark of National Register Quality." 64-70 Pine St., 124 Front St., 136 Front St., 140 Front St. and 146-150 Front St. received ratings of "C", indicating resources of "some merit and strength of identity". Rated "D", indicating buildings of "no particular cultural or design merit", were 135-141 California St., 111 California St., and 50 Pine St. (The Foundation for San Francisco's Architectural Heritage, 1978 unpublished, The San Francisco Historic Resources Inventory).

None of the buildings on the site or facing the site are listed in Here Today, the 1968 catalogue and description of architecturally outstanding buildings built before 1920 (Olmsted, Roger, and T.H. Watkin, 1968, Here Today, San Francisco's Architectural Heritage, Junior League of San Francisco).

C. CULTURAL AND HISTORIC ASPECTS

The project site was once part of the San Francisco Bay inlet called Yerba Buena Cove, the principal anchorage for ships from the 18th century through the gold rush years of the 19th century. In 1849 the original shoreline crossed Market St. at First and Battery Sts., and California St. west of Sansome St. A map showing the 1849 shoreline is available for public review at the Department of City Planning, Office of Environmental Review. The California St. Wharf extended eastward from that point for about one block. Filling of the cove was rapid following the gold rush of 1849. The U.S. Coast Survey of 1853 shows the project site completely filled and a building on the northwest portion of the block where 149 California St. is located.

Many ships which were anchored in the cove during the early years of the gold rush were abandoned. Some of the later fill covered some of the ships which had sunk. A map prepared by and on file at the San Francisco Maritime Museum shows a ship in the intersection of Pine and Davis Sts., but none on the site. The ship was the Calleo, named after the Chilean seaport, and is believed by H. Soeten, curator of the museum, to have been removed before filling occurred (telephone communication, 4 October 1978)./2/

Early buildings on the project site were damaged or destroyed in the 1906 earthquake and fire; rebuilding on the site occurred in the succeeding decade. (See Section III.B, pp. 30-31, for a discussion of the San Francisco Architectural Inventory as it pertains to this block.)

D. COMMUNITY SERVICES AND UTILITIES

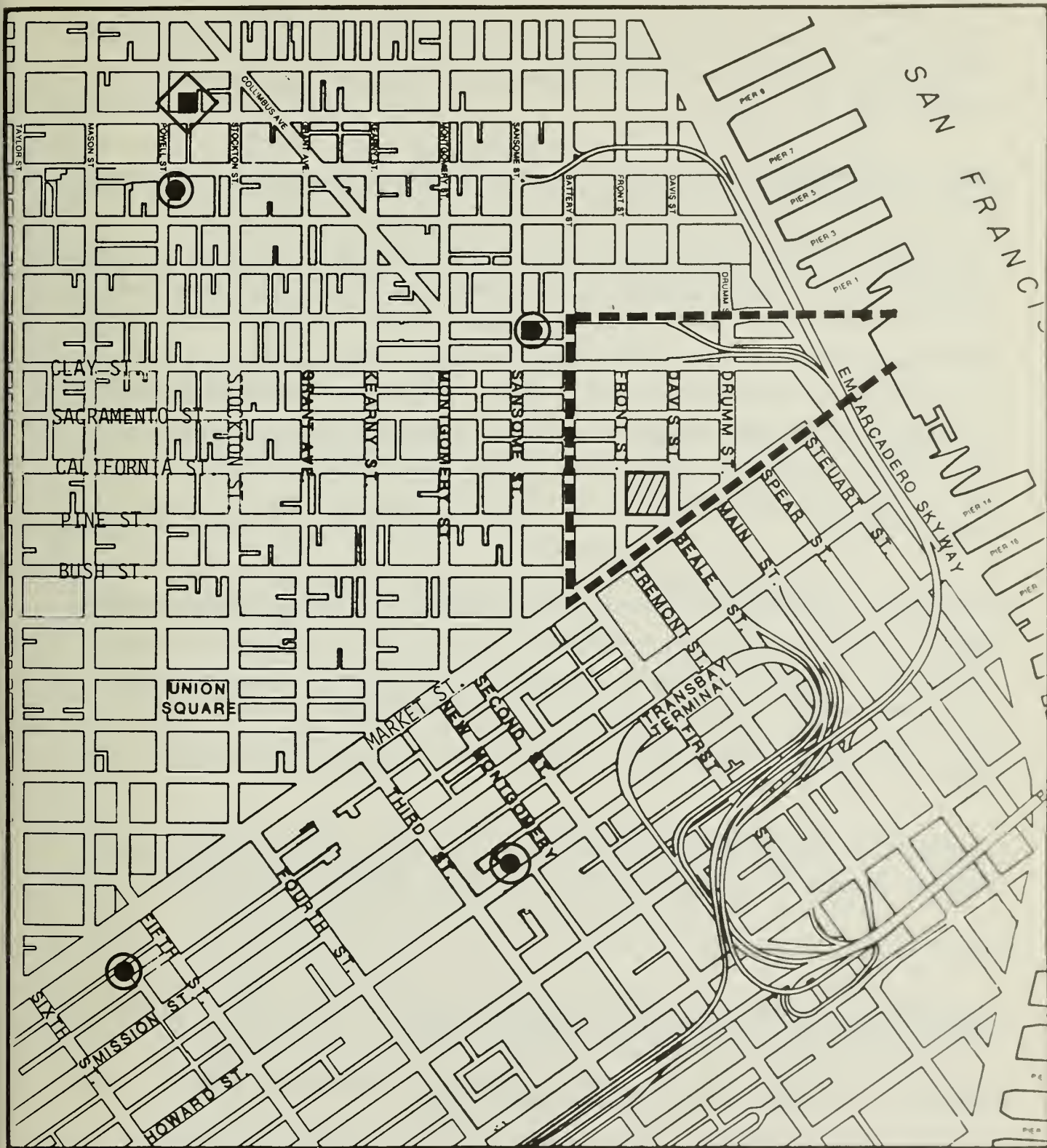
See the end of this section for a list of persons from whom information has been obtained.

Police. The project site is located in Reporting Area 344 of the San Francisco Police Department's Central District. The nearest police station is the Central Station at 766 Vallejo Street (see Figure 17). A total of 140 officers, 14 percent of the City's Patrol Division, were assigned to Central Station in 1976./1/ The project vicinity is patrolled by a radio car 24 hours a day. There are no foot patrols in the project area./2/

In 1977 a total of 593 incidents, including 30 violent crimes, occurred in Reporting Area 344. Other, similarly sized, reporting areas in the Central District averaged a total of 285 incidents and 20 violent crimes during the same period./3/ Data for the first six months of 1977 and 1978 indicate that crime in the reporting area increased by approximately 4%. Auto-related thefts currently account for about 53% of the reported crime at the project site./4/

Fire. Fire protection services are provided by the San Francisco Fire Department. All the companies of first response respond within four minutes. Fire Department response to the project vicinity is about average in comparison with other parts of the City./5/ Hydrants connected to the City's domestic low-pressure water system and the Fire Department's high-pressure Auxilliary Water Supply System are located on all corners of the project site./6/

Water. Water for San Francisco is provided from the Hetch Hetchy and San Francisco Water Department system via Crystal Springs and San Andreas Reservoirs. The project area is served by water from the 141-million gallon capacity University Mound Reservoir located north of McLaren Park. Eight-inch



LEGEND



101 CALIFORNIA STREET
BUILDING SITE



CENTRAL POLICE STATION



POLICE STATISTICAL REPORTING
AREA 344



FIRE STATIONS - FIRST
ALARM RESPONSE

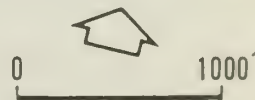


FIGURE 17 POLICE AND FIRE STATIONS
SERVING THE PROJECT SITE

diameter water mains serve the project site from Davis and Pine Sts. An 8-inch diameter main is also located in California St. and there is a 6-inch diameter main in Front St. Current water use at the site is approximately 15,000 gallons per day./7/

Sewer. Combined storm and sanitary sewer service is provided in San Francisco by the Bureau of Sanitary Engineering of the San Francisco Department of Public Works. The site is currently served by a 3 ft. by 5 ft. brick main in California St, a 12-inch diameter main in Front St., a 15-inch diameter main in Davis St. and a main of 24 inches in diameter in Pine Street./8/ The North Point Water Pollution Control Plant receives sewage and storm flows from the area in the vicinity of the proposed project. The plant is not designed to handle storm flows from rainfall in excess of approximately 0.02 inches per hour. Excess storm flows bypass the plant and sewage is discharged directly into the Bay. Projects to reduce overflows are currently under design and construction./9/

Solid Waste. Domestic solid wastes are collected by the Golden Gate Disposal Company. Wastes are taken to a transfer station north of Brisbane and then transported to a landfill site at the Mountain View Shoreline Regional Park. The current contract provides for use of the site through 1983./10/ The Company now collects approximately 2 tons of solid waste per day from the project site./11/

Telephone. Telephone service is provided to the site by Pacific Telephone and Telegraph Company. All lines serving the area are underground./12/

NOTES - Community Services

/1/ Officer P. Libert, Planning and Research Division, San Francisco Police Department, personal communication, 14 August 1978.

/2/ Captain C. Murphy, Central District Station, San Francisco Police Department, telephone communication, 6 October 1978.

/3/ San Francisco Police Department, 1978, Incidents for Which a Police Report was Made, by District, Plot and Crime, January-December, 1977.

/4/ San Francisco Police Department, 1978, Incidents for Which a Police Report was Made, by District, Plot and Crime, January-June 1977 and January-June 1978.

/5/ Chief W. Graham, Fire Marshal, San Francisco Fire Department, personal communication, 25 August 1978.

/6/ Chief W. Graham, Fire Marshal, San Francisco Fire Department, personal communication, 18 August 1978.

/7/ J. Kenck, Manager, City Distribution Division, San Francisco Water Department, letter communication, 12 October 1978. This letter is available at the Department of City Planning, Office of Environmental Review.

/8/ J. dela Cruz, Section Engineer, Civil/Sanitary Engineering Division, San Francisco Department of Public Works, letter communication, 31 August 1978. This letter is available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319.

/9/ M. Francies, Wastewater Control Division, Bureau of Sanitary Engineering, telephone communication, 17 October 1978.

/10/ F. Garbarino, Office Manager, Golden Gate Disposal Company, telephone communication, 14 May 1978.

/11/ M. Ballestrazze, Personnel Director, Golden Gate Disposal Company, telephone communication, 17 October 1978.

/12/ P. Downey, Engineering Manager, Pacific Telephone and Telegraph, telephone communication, 27 September 1978.

E. ECONOMIC ASPECTS AND RELOCATION

BLOCK 263, THE PROJECT SITE

Office and Retail Space. The project site contains 32 commercial establishments, occupying about 55,600 sq. ft. in seven structures ranging from 2 to 9 stories. The buildings have a total of 178,000 net sq. ft. including parking. With the exception of 149 California Street and the Leopard Cafe, only ground floors are occupied and 69% of the total rentable space is unoccupied. The annual rent for buildings on the site is about \$6 per square foot. See Appendix C, p. 193, for a detailed list of current occupancy. In summary, usage is as shown in Table 3.

Employment and Tenant Mix. Business establishments at the project site provide employment for about 100 persons. The majority (about 2/3) are employed in restaurants or retail shops. Three firms, a liquor store, a restaurant, and a salvage retail store, employ more than 10 persons. Most of

TABLE 3: EXISTING COMMERCIAL USES ON BLOCK 263

	<u>Estimated Net Square Feet</u>	<u>Percent</u>
Office	7,500	4
Retail/Restaurant	39,000	22
Storage	4,100	2
Parking	5,000	3
Unoccupied	<u>122,400</u>	<u>69</u>
Total	178,000	100

SOURCE: Appendix C, p. 193.

the office tenants are engaged in import-export, and are self-employed in 1- or 2-person offices (See Appendix C, p. 193, central columns).

Relocation./1/ Businesses have been relocating from the project site since 1972 when Tishman Cahill acquired the property from Firemen's Insurance Company of Newark, N.J., one of the Continental Insurance Companies (See Appendix C, p. 193, last column). In 1973, the larger tenants, Spreckles Sugar and two other food companies, relocated due to the deteriorating quality of the buildings, need for additional space, and uncertainty about the future disposition of the property. Bechtel and Pacific Gas and Electric Company had relocated earlier. Subsequently, a fire damaged the building containing their offices and the 49,000 sq. ft. building was demolished. All of these firms relocated in San Francisco. Relocation records were not kept for smaller tenants. Since Firemen's Insurance Company reacquired the property in 1975, most tenants have been transient and have month-to-month leases./2/

Fiscal: Existing Assessed Valuation and Property Taxes (Block 263). The 1978-79 assessed value of the ten parcels in Block 263, the project site, totals \$2.9 million; \$2.5 million is in land value and \$0.4 million is in improvements. At the 1978-79 composite tax rate of \$5.06 per \$100 assessed value, the site will generate \$146,200 in property taxes this fiscal year. These revenues will be distributed as shown in Appendix D, p.198.

Fiscal: Other Revenues. Based on the average gross receipts of \$75 per sq. ft. of the site's two largest retail/restaurant tenants, the existing 39,000 sq. ft. of retail uses in the block generated an estimated \$190,000 in 1977-78 in sales tax revenues (6.5% of \$2.9 million gross receipts): the State received about \$147,000; the City and County of San Francisco, \$28,000; and BART, \$15,000. The estimated 1977-78 revenues from payroll expense or business tax were on the order of \$7,100./3/

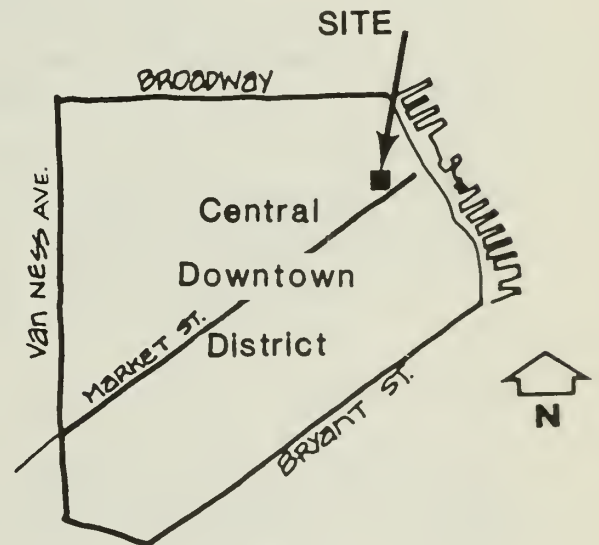
Fiscal: Existing Costs and Net Revenue. The City and County currently incurs some costs to provide services to the site, such as fire and police protection, street lighting and cleaning, and street and storm drain maintenance. Revenues generated from the block from property tax (\$93,500), sales tax (\$28,000) and business or payroll tax (\$7,100) less public expenditures are estimated to exceed service costs.

DOWNTOWN AND REGIONAL SETTING

Existing and Proposed Office Space, Downtown Business District.

San Francisco has about 55 million gross sq. ft. of office space./4/ Half of this space is in 56 major office buildings, with a height of 10 stories (118 ft.) or more, built in the Downtown business district in the 30-year period since 1948.

About half of the total post-World War II high-rise office space, 14 million sq. ft. out of 27 million sq. ft., was constructed from 1970 through 1977 in 21 structures. An additional 9 office buildings are under construction now, and another 6 buildings, including the project, have been formally applied for or are expected to be proposed and are in the process of environmental impact report preparation. If all were to be constructed, these 15 buildings would add 9 million sq. ft. to existing Downtown high-rise office space, an increase of 33% over existing high-rise office space and an increase of 16% over total existing office space (see Appendix E, p. 199).



Vacancy Rates and Absorption. A shortage of office space currently exists in San Francisco. As of mid-1978, the office vacancy rate of 8.9% citywide/5/ and about 1.0% in new Downtown high-rise buildings built from 1970-77/6/ was among the lowest in the nation. It is expected that the buildings now under construction and due for completion in 1980 will be readily rented due to pent-up demand./7/ The majority of the space is to be leased on the open market. About 63% of the space now under construction has firm commitments; the remainder is not yet pre-leased./8/ One effect of the office space shortage in San Francisco has been to stimulate office development elsewhere in the Bay Area. San Mateo and Contra Costa Counties, in particular, are experiencing demand not only from expanding local businesses, but also from San Francisco relocations./9/

Rents./10/ Office rents have increased sharply in the past two years as the City and regional supply has tightened, and as land and energy costs have escalated. High-quality, new spaces lease for \$12 to \$25 per sq. ft. annually. Somewhat older downtown buildings lease for \$11 to \$12 per sq. ft. annually. In contrast, San Francisco offices not located downtown and offices in the suburbs lease for \$7 to \$9, and rents in unrenovated pre-World War II buildings are around \$6 per sq. ft. annually. If renovated, pre-war buildings rent at \$8 to \$9 per sq. ft.

NOTES - Economic Aspects and Relocation

/1/ Information in this subsection is based upon the following: N. Spencer, Senior Sales Consultant, Coldwell Banker, telephone communication, 6 September 1978 and L. Esteban, Executive Secretary, Continental Insurance Company, telephone communication, 8 October 1978.

/2/ N. Spencer, Senior Sales Consultant, Coldwell Banker, letter communication, 6 September 1978 and personal communication, 29 November 1978. The letter is available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319.

/3/ An explanation of San Francisco's business taxes excerpted from Detailed Findings; Impact of Intensive, High-Rise Development in San Francisco, Final Report, June, 1975, San Francisco Planning and Urban Renewal Association, p. 146-147 is available at the Office of Environmental Review, Department of City Planning. The payroll tax rate is now 1.1%. Banks and insurance companies are exempt. The estimated business tax revenue of \$7,100 is based on \$2,900 from payroll expense tax and \$3,900 from gross receipts tax. Assumptions:

Payroll Expense Tax: 32 office employees (many self-employed) @ \$20,000 for total office payroll of \$640,000; 60% eligible for tax, tax rate of 1.1%.

Gross Receipts Tax: \$2.9 gross receipts in retail/restaurant space; tax rate of \$1 per \$1,000 (Class 08).

/4/ The 55 million sq. ft. estimate of existing inventory is based upon the 50 million sq. ft. enumerated in a 1974 SPUR-sponsored survey (made as background for the analysis of high-rise development cited in note 3) plus the 5 million sq. ft. of high-rise office space in 7 buildings completed in 1976 and 1977.

/5/ Security Pacific Bank, 30 June 1978, Northern Coastal Monthly Summary of Business Conditions. The article states that 1.3 million sq. ft. came on line in 1977, of which a large proportion is already occupied.

/6/ N. Spencer, Senior Sales Consultant, Coldwell Banker, personal communication, 29 November 1978.

/7/ Security Pacific Bank, op. cit.

/8/ N. Spencer, Senior Sales Consultant, Coldwell Banker, letter communication, 2 May 1979. The letter is available for public review at the Department of City Planning, Office of Environmental Review.

/9/ N. Spencer, Senior Sales Consultant, Coldwell Banker, telephone communication, 7 May 1979 and J. Weil, Leasing Agent, Grubb and Ellis, telephone communication, 8 May 1979.

/10/ Information in this paragraph is based upon telephone communications with D. Bixby, Vice President, Milton Meyer & Co., 12 October 1978, with N. Spencer, Senior Sales Consultant, Coldwell Banker, 16 October 1978, and upon a personal communication with J. Stanisch, Senior Real Property Appraiser, Assessor's Office, City and County of San Francisco, 17 October 1978.

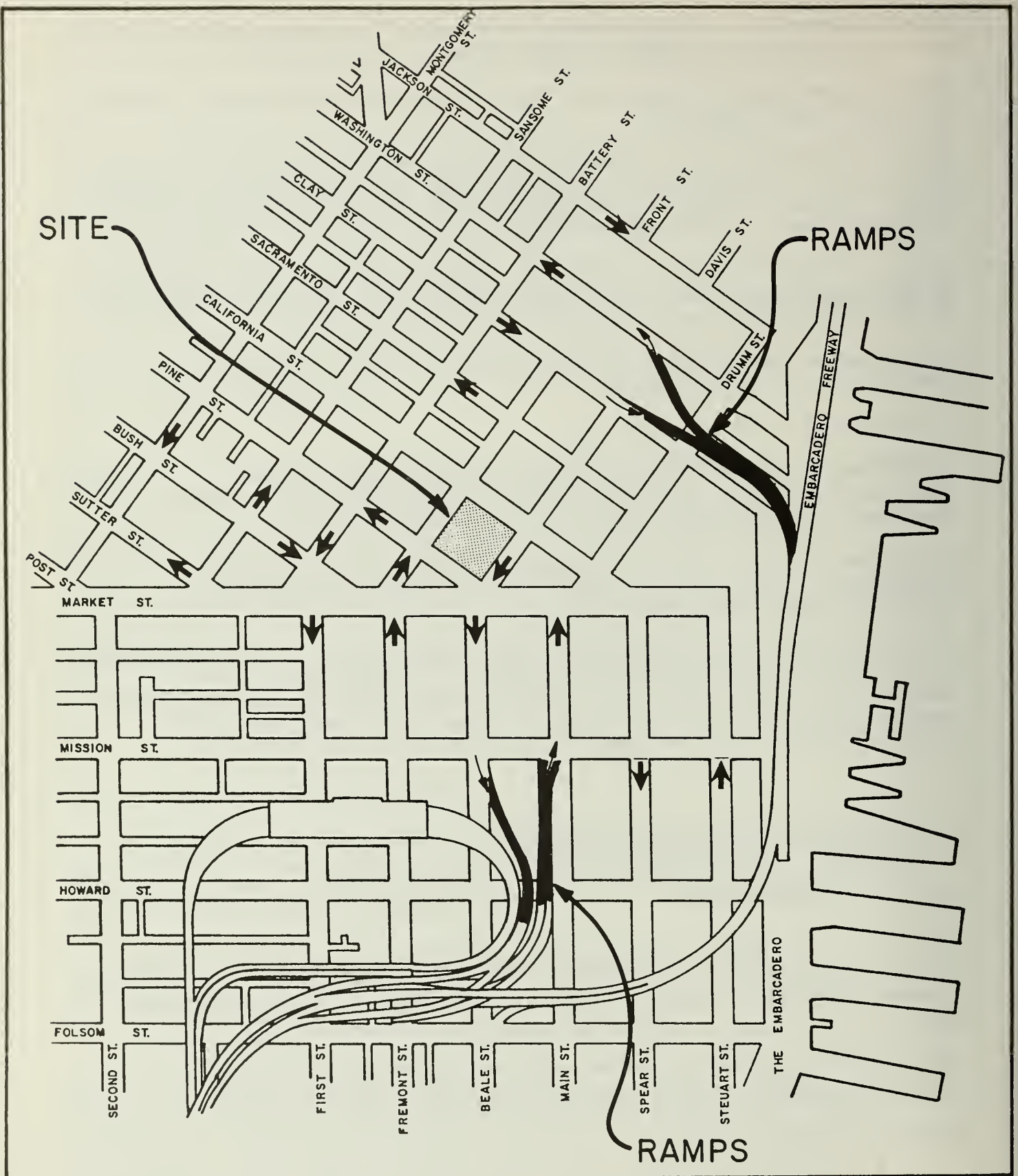
F. TRANSPORTATION, CIRCULATION AND PARKING

STREET AND FREEWAY SYSTEM

The site is served by a grid of local streets and by portions of the regional freeway system (see Figure 18). Access to the freeways connecting with the East Bay, San Francisco Airport, and Peninsula is provided by pairs of ramps 700 to 900 ft. north of the project site and 900 ft. south of the site.

Further information on the street and freeway system is included in Appendix F, p. 201.

The site is within the Downtown Core automobile control area designated in the Downtown Transportation Plan (a part of the Transportation Element of the



ONE-WAY STREETS →



0 600'

FIGURE 18 STREET SYSTEM AND FREEWAY RAMPS

Comprehensive Plan, San Francisco Planning Commission Resolution 6834, 27 April 1972). This area is described in the Plan as "that intensely populated area which functions as a financial, administrative, shopping and entertainment center where priority must be given to the efficient and pleasant movement of business clients, shoppers and visitors; where a continuing effort should be made to improve pedestrian, transit and service vehicle access and circulation; where priority for the use of limited street and parking space within this core should be available for these functions; and where a continuing effort should be made to reduce the impact of the private commuter vehicle." The Revisions to the Transportation Element of the Master Plan Regarding Parking (City Planning Commission Resolution 7647, 20 January 1977), confirms the Plan for Transportation (1972) statement that ". . . all additions to the commuter load as a result in job growth in the City should be made by public transit." In accordance with this, objectives and policies guiding and limiting the provision of parking are outlined in the Revisions to the Downtown Transportation Plan and the Plan for Transportation. Specific objectives and policies for the design and location of new parking facilities are given in the revised Citywide Parking Plan (Revisions to the Transportation Element of the Master Plan Regarding Parking, pp. 6 through 13).

The intersections of Market, Pine and Davis Sts., Davis and California Sts., California and Front Sts. and Pine and Front Sts. are controlled by traffic signals. The signals operate on a pre-timed basis. A report on the traffic, circulation and parking analysis made by TJKM, transportation consultants, is available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319. The report describes sources of volume data and the method used in the intersection capacity analysis.

Existing traffic volumes on nearby streets are shown in Table 4. The highest volumes during the peak hour as well as the maximum 8-hour and the 24-hour periods are on the streets leading to the freeways. Market St. and streets surrounding the project site have the lowest volumes. A capacity analysis of the 4 intersections adjoining the project and of the intersection at the freeway on-ramp at Beale and Mission Sts., indicates that they are operating at Level of Service C or better. See Appendix G, p. 102, for definitions and

volume-capacity ratios for each Level of Service, and an explanation of the capacity analysis. Table 5 shows the peak-hour volume-to-capacity ratios and the most heavily used approach to each intersection.

TABLE 4: 1978 VEHICLE TRAFFIC VOLUMES IN THE VICINITY OF PROJECT SITE

<u>Street</u>	<u>Section</u>	<u>24 Hour</u>	<u>Peak Hour*</u>	<u>Max. 8 Hours</u>
Front	Pine to California	4,800	390	2,700
Davis	California to Market	7,600+	980	4,560***
California**	Davis to Drumm	8,100	620	4,430
Pine	Davis to Front	6,000+	485	3,570***
Market**	Main-Drumm to Davis-Beale	8,500	680	5,040
Beale	Market to Mission	8,000	980	4,800
Main	Mission to Market	13,400	1,520	7,980
Clay	Front to Davis	29,200	2,290	16,370
Washington	Off-ramp to Battery	15,600	1,970	9,380
Battery	Commercial to Sacramento	14,700	1,420	8,510

*The peak period is between 4:00 and 6:00 p.m. with the exception of Washington and Main Sts. where the peak period is between 7:00 and 9:00 a.m. The peak hour is the one hour during the peak period when traffic volumes are greatest.

**Two-way totals.

***Estimated from peak-hour counts made by TJKM, the traffic consultant, and historic 24-hour counts made by San Francisco Bureau of Traffic Engineering.

TABLE 5: 1978 PEAK-HOUR VOLUME-TO-CAPACITY RATIO SUMMARY AT INTERSECTIONS IN THE VICINITY OF PROJECT SITE

<u>Intersection</u>	<u>Service Volumes (V/L/H)*</u>		<u>v/c*** Ratio</u>	<u>Critical Approach (Direction)</u>
	<u>Existing</u>	<u>Level of Service E**</u>		
Front and California	432	880	0.49	Eastbound
Davis and California	514	880	0.58	Eastbound
Davis and Market	630	880	0.72	Southbound
Beale and Mission	751	1,320	0.57	Eastbound
Front and Pine	614	880	0.70	Westbound

*Vehicles per lane per hour.

**Level of Service E is defined as "flow is unstable; there may be momentary stoppages".

***V/c is the existing volume/capacity at Level of Service E.

PARKING AVAILABILITY

A survey analysis of existing long-term (greater than 6 hours), commercially available, off-street parking in the area bounded by The Embarcadero, Jackson St., Montgomery St., Second St., and Folsom St. follows (see Figure 19). The survey was conducted by TJKM on the afternoons of Thursday and Monday 1 and 5 of June 1978, and Wednesday and Thursday 20 and 28 September 1978. In this area there is a total of 11,000 long-term, commercially available spaces of which 1,000 spaces are vacant on a daily basis. This is equivalent to an average occupancy of approximately 90%. Approximately one-half of the vacant spaces are located north of Market St. The existing parking garage on the Pine St. side of the project site has 90 parking spaces, all of which are used on a long-term daily basis.

There are 1-hour metered parking spaces on the four block faces surrounding the project site. Some of these spaces are restricted to commercial use until 1:00 p.m. The California St. spaces are in a tow-away zone from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m. The Davis and Pine St. spaces adjacent to the project site are in a tow-away zone between 4:00 p.m. and 6:00 p.m. No parking or stopping is allowed in tow-away zones.

PEDESTRIAN SETTING

The pedestrian flows on the sidewalks serving the project site were measured during the peak periods of 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. The levels of service of operation for each of the sidewalks were calculated and are presented in Table 6, p. 45. An explanation of the Level of Service scale is given in Appendix G., p. 205.

During the peak periods, pedestrian activity around the site is directed primarily from transit and parking facilities in the morning and toward them in the afternoon. The sidewalks on the project site are currently operating at Level of Service A during the a.m. and p.m. 15-minute peak periods.

The pedestrian flows during the p.m. peak are heavier at the intersection of Davis, Market, Pine, and Beale Sts. than elsewhere in this vicinity. Two bus stops (see Figure 20, p. 45)--one serving the No. 41 Union-Howard electric

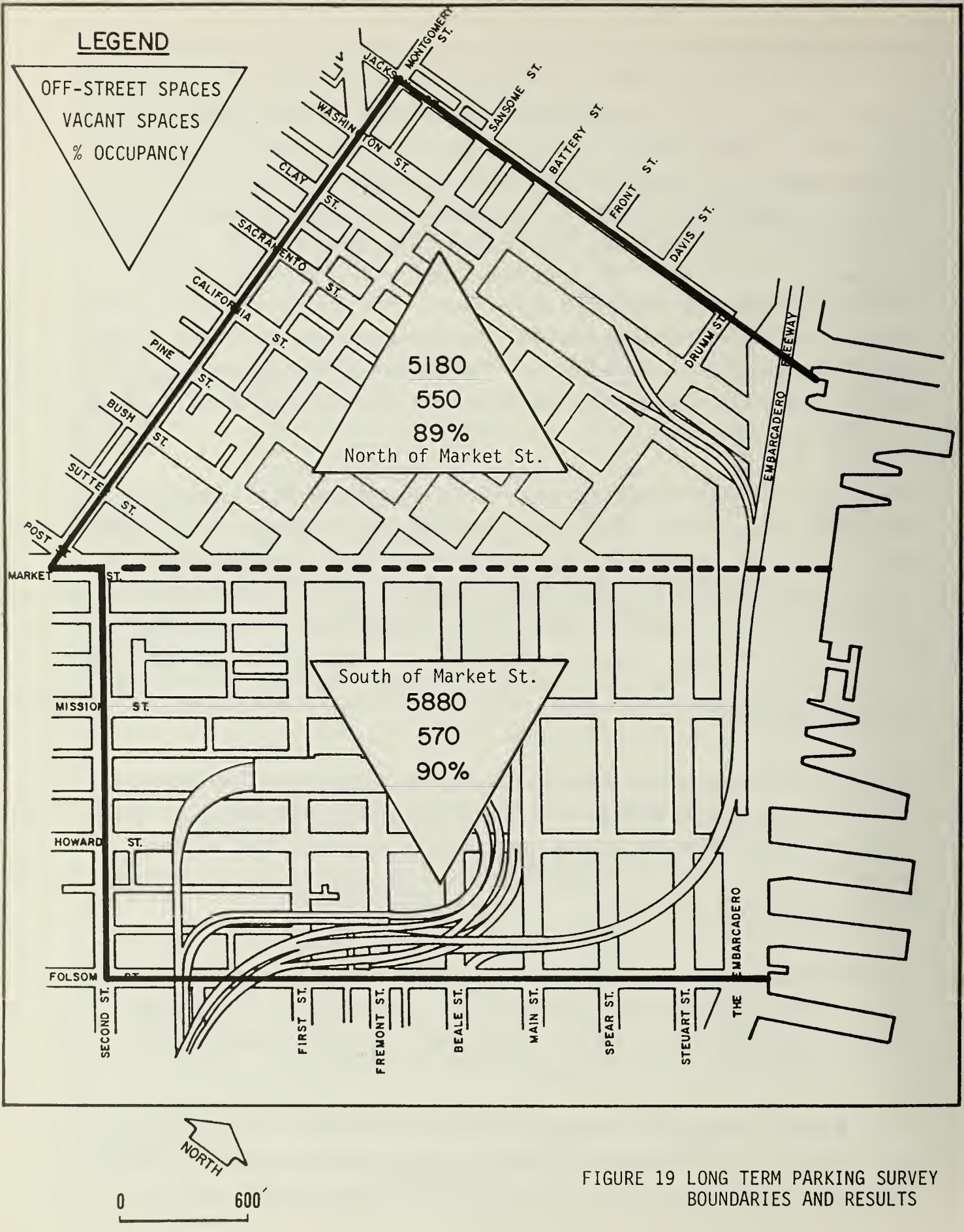


FIGURE 19 LONG TERM PARKING SURVEY
BOUNDARIES AND RESULTS

TABLE 6: 1978 WEEKDAY PEDESTRIAN VOLUMES AT THE PROJECT SITE (15-MINUTE PEAK)*

SIDEWALK	EFFECTIVE WIDTH**	VOLUME***		RATE+		PEDESTRIAN LEVEL OF SERVICE++	
		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
Front St.	8 ft.	40	240	0.3	2.0	A	A
California St.	7 ft.	40	65	0.4	0.6	A	A
Davis St.	7 ft.	90	335	1.8	3.1	A	A
Pine St.	5.5 ft.	130	230	1.6	2.8	A	A

*Measurements and observations were made by TJKM and on Tuesday and Wednesday, 6 and 7 February 1979.

**Effective widths take account of poles, planter boxes, people standing at store windows, etc.

***Pedestrians per 15 minutes.

+Pedestrians per foot of sidewalk width per minute.

++Level of Service is measured at mid-block. For definition of Levels of Service, see Appendix G, p. 205.

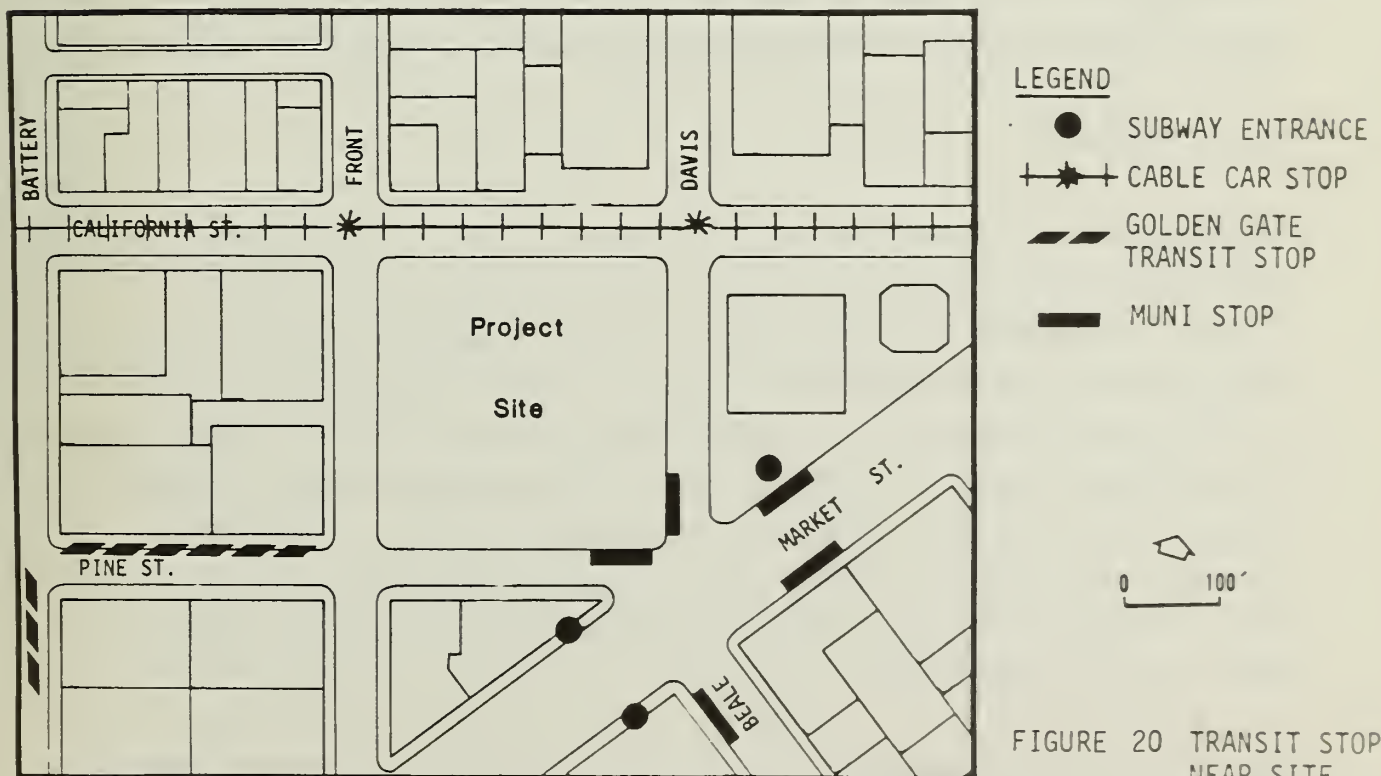


FIGURE 20 TRANSIT STOPS NEAR SITE

trolley bus line and the No. 45 Greenwich motor coach line of the Muni on Davis Street at Pine St., and the other serving the SamTrans line 7R on Pine St. at Davis St.--and the Embarcadero Station subway entrances account for part of this heavy pedestrian activity. Queues of persons waiting for buses during the p.m. peak hour were observed at both of the above stops. The queues did not exceed 20 people during the observation period. Crosswalk volumes at this intersection are also intense; bunching of up to 50 pedestrians southbound on Davis St. during single signal cycles was observed during the p.m. peak. The transit patrons queued on the sidewalk reduced its effective width, but did not otherwise interfere with the sidewalk flows.

Front and Pine Sts. have lower pedestrian flows than Davis St. A block-long Golden Gate Transit bus loading zone on Pine St. west of Front St., which is used between 4:00 and 6:00 p.m., contributes to the pedestrian flows on these streets. The crosswalk flows at Front and Pine Sts. are less intense than at the intersection of Davis, Market, Pine and Beale Sts.

The California St. cable car line (No. 61, Muni) generates part of the pedestrian traffic. As cable car passengers are required to board and alight in the middle of the travelled way on California St., without protection of loading zones or signals, vehicle-pedestrian conflicts occur.

TRANSIT SERVICE

The project site is served directly by 8 Muni electric trolley and motor coach lines providing radial service to and from the Downtown area, by the 5 light-rail vehicle lines which will serve the Embarcadero Station effective in 1980, and by the California St. cable car line. Regional service is provided to the East Bay by the Bay Area Rapid Transit District (BART) from the nearby Embarcadero Station, and by A-C Transit motor coaches from the Transbay Transit Terminal on Mission St. between Fremont and First Sts. According to W. Belding of BART, BART is planning to increase service before 1982 by operating directly between Richmond and Daly City (telephone communication, 2 May 1979).

Service to the Peninsula is provided by the Southern Pacific Transportation Company from a train terminal at Fourth and Townsend Sts., by the San Mateo

County Transit District (SamTrans) which has bus routes and stops along various streets in the area, primarily on Mission St. west of First St., and by BART which effects transfers to SamTrans routes at the Daly City Station. The Golden Gate Bridge, Highway and Transportation District (Golden Gate Transit) provides peak-period service to Marin and Sonoma counties from stops on Pine St., 1 block west of the site, and ferry service to terminals in Larkspur and Sausalito from the Ferry Building. The Tiburon Ferry Service, operated by Harbor Carriers, Inc., also terminates at the Ferry Building.

Although not traditionally considered as transit, car pooling is becoming a substantial form of para-transit. Golden Gate Transit operates a van-pooling program to areas not sufficiently close to the existing routes. The RIDES van- and car-pooling programs, operated under the auspices of a nonprofit, publicly funded corporation, provide consulting and matching services to help establish Bay Area van pools.

Muni and BART exceed their seated capacities during peak hours, but operate at less than 100% of total capacity (seated and standing) when ridership is averaged over a one-hour period. During the peak of the peak, when ridership demand is more intense, demand on Muni and BART may exceed the total capacity of the available vehicles. This peak-of-the-peak condition on the Muni varies from line to line. The duration of jammed conditions on the more heavily used lines (J, K, L, N, 38, 55) may range from 15 to 30 minutes. The jammed conditions are caused by variations in day-to-day operating conditions which result in the bunching of transit vehicles. The BART peak of the peak demand is fairly constant over a 30-to-40-minute period during which outbound trains are loaded in excess of seated capacity. Transit agencies other than Muni and BART operate at less than 100% of their seated capacities during a 1-hour peak period. Specific routes, however, were observed to experience peak-of-the-peak loadings in excess of seated capacity for periods of 5 to 30 minutes during the peak hour. Observations were made by TJKM on Monday, Tuesday and Wednesday, 25, 27, and 28 September 1978 and on Monday and Wednesday 2 and 4 October 1978. The observed conditions are verified by a line-by-line transit analysis available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319. The p.m. peak is more intense than the a.m. peak for most agencies. The existing

characteristics of transit ridership on lines of each transit agency serving the project site are shown in Appendix H, p. 206.

G. AIR QUALITY

San Francisco's air quality is least degraded among the developed portions of the Bay Area. The prevailing westerly and northwesterly winds tend to carry pollutants from the City to the East Bay and South Bay (see Appendix K, p. 215). Annual fluctuations in air quality are due to a combination of meteorological factors, which vary unpredictably, and pollutant emissions, which have been decreasing in the Bay Area and are expected to continue to do so in the near future. Highway annual pollutant concentrations in San Francisco, while exhibiting alternating fluctuations due to meteorology, have shown an overall improvement during the 1971-1978 period. However, annual numbers of violations of air quality standards, while exhibiting similar fluctuations, have not shown any clear overall trend during the same period. In 1978 a total of ten violations of the ozone, carbon monoxide, nitrogen dioxide, and particulate standards occurred, following a year in which only one violation (of the particulate standard) occurred. A 3-year summary of the data on San Francisco air quality and the corresponding air quality standards appears in Appendix L, p. 216).

H. NOISE

The noise environment of the site is dominated by traffic and construction noise, as is typical of Downtown San Francisco. Trucks, buses, automobiles, and emergency vehicles, as well as construction equipment, are the major contributors. Noise levels were measured at three locations near the project site during the afternoon on Tuesday, 10 October 1978 (see Figure 21). At locations 1 and 2, typical traffic noise levels for the area were determined. These data provide a base for comparison with noise levels which would occur during construction. At location 3, the noise from a nearby construction project was also measured. A complete discussion of acoustical concepts and a copy of the noise report are available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319 (see also Appendix M, p. 217).

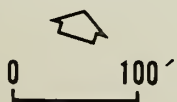
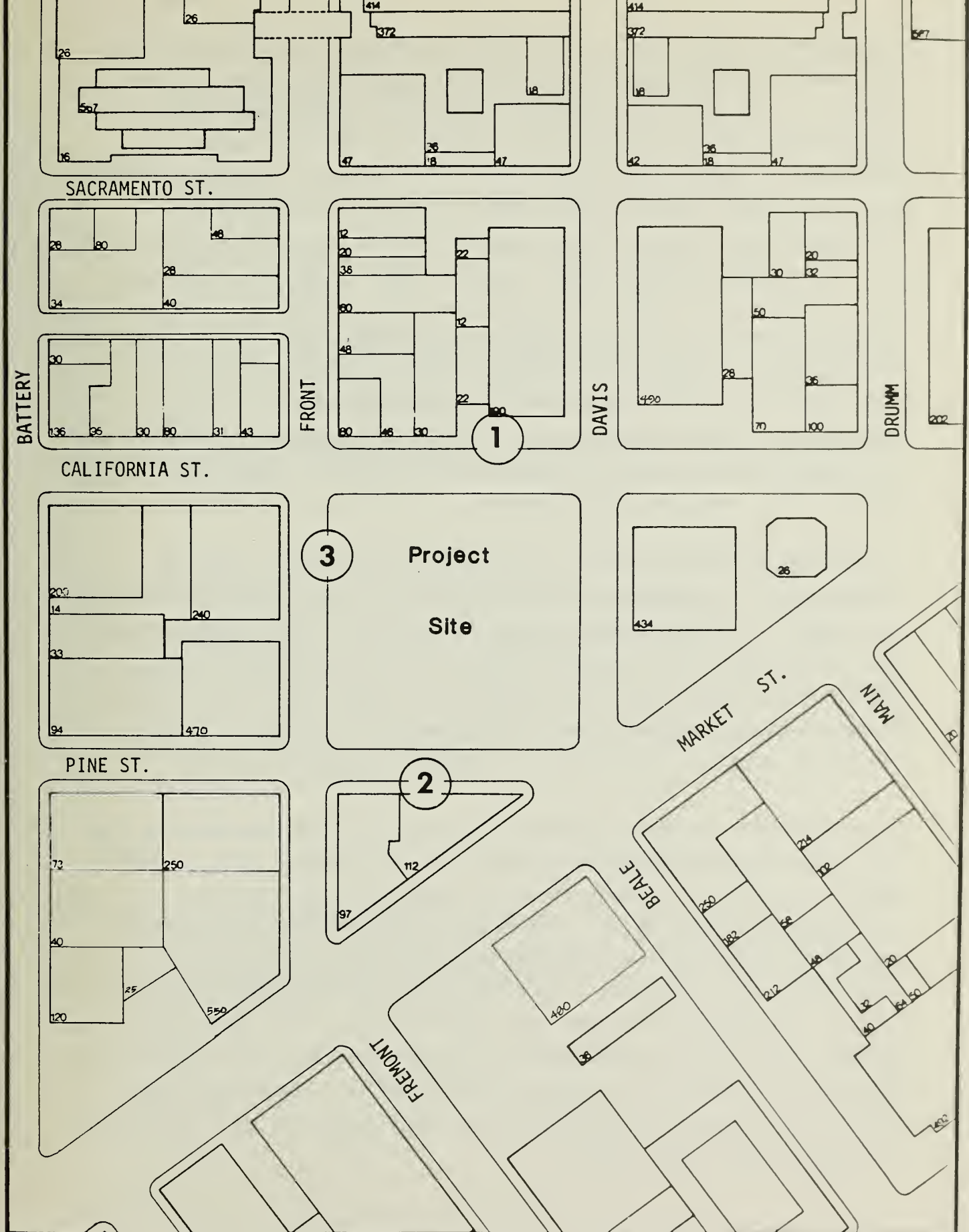


FIGURE 21 NOISE MEASUREMENT LOCATIONS

At measurement location no. 1, near the intersection of California and Davis Sts., traffic on California St. was the most significant source of noise. Traffic on Davis St. also contributed to the noise environment. During lulls in traffic the background noise level (L90) was 69 dBA (see Table 7 for definitions of terms), controlled by noise from mechanical equipment in the Mutual Benefit Life building, located on the southeast corner of the intersection, and noise from the construction project at California and Front Sts. At measurement location no. 2, on the south side of Pine St. between Davis and Front Sts., traffic on Pine St. was the dominant noise source. Individual loud cars and buses generated maximum levels of 73 to 83 dBA. Traffic on Davis, Front, and Market Sts. also contributed to the noise environment. A large crane operating at a construction site at the intersection of Market and Beale Sts. intermittently generated 68 dBA at measurement location no. 2. Construction at the corner of Front and California Sts. was occasionally audible.

At measurement location no. 3, on the east side of Front St. south of California St., a construction project across the street controlled the noise environment. A concrete pumping operation about 50 ft. away generated levels from 79 to 96 dBA. Traffic noise sources at this location were dominated by construction noise during the measurement. The statistical distributions of the data from the three measurements are summarized in Table 7. Further information about the noise survey is provided in Appendix M, p. 217.

The Environmental Protection Element of the San Francisco Comprehensive Plan (City Planning Commission Resolution No. 7244, 19 September 1974, p. 19) contains the 1974 noise levels along thoroughfares in San Francisco. The data are presented in terms of Ldn. Ldn is a noise measurement based on human reaction to cumulative noise exposure over a 24-hour period, taking into account the greater annoyance of nighttime noises (noise between 10 p.m. and 7 a.m. is weighted 10 dBA higher than daytime noise). The Ldns along the four streets bordering the proposed project site are given as 70 Ldn along Pine and California Sts. and 65 Ldn along Davis and Front Sts. These noise levels (exclusive of temporary construction noise along Front St.) were corroborated by the noise measurement survey.

TABLE 7: NOISE LEVELS* NEAR PROJECT SITE (IN dBA)** MEASURED ON
10 OCTOBER 1978

<u>Location</u> <u>No.</u>	<u>Time</u>	<u>Leq</u>	<u>L10</u>	<u>L50</u>	<u>L90</u>	<u>L99</u>
1	3:15 - 3:30 pm	71	72	70	69	69
2	3:40 - 3:55 pm	69	71	68	66	65
3	4:05 - 4:20 pm	83	85	80	79	77

*The Leq is the equivalent steady-state sound level which in a stated period of time would contain the same acoustic energy as the time-varying sound-level during the same period. The L10, L50, L90 and L99 represent the A-weighted sound levels exceeded 10%, 50%, 90% and 99% of the measurement period, respectively.

**dBA is the measure of sound in units of decibels (dB); the "A" denotes the A-weighted scale which simulates the response of the human ear to various frequencies of sound.

Construction noise is also regulated by the San Francisco Noise Ordinance. The ordinance requires that all powered construction equipment, except impact tools and equipment, not emit more than 80 dBA when measured at 100 feet. Impact tools and equipment, including pavement breakers, jackhammers, and piledrivers, must be both intake-and exhaust-muffled to the satisfaction of the Director of Public Works. The ordinance further requires a special permit for construction after 8 p.m. and before 7 a.m.

I. ENERGY

The Pacific Gas and Electric Company furnishes electricity and natural gas to the City of San Francisco. Gas distribution mains and underground electric facilities are located in the project vicinity.

J. GEOLOGY AND HYDROLOGY

TOPOGRAPHY

The site is located on flat land about 1,400 ft. southwest of San Francisco Bay. The site is near Elevation 0, San Francisco Datum (SFD) which is 8.6 feet above mean sea level. Higher land is located to the west at Nob Hill, to the northwest at Telegraph Hill and to the southeast at Rincon Hill.

GEOLOGY

Before 1850, the site was underwater within Yerba Buena Cove of San Francisco Bay. The cove was then filled with dune sand, silt, clay, rock waste from excavations, organic material and garbage. By 1852, the site was dry land near sea level. Between 1870 and 1875, a sea wall was constructed to the east of the site to protect the landfill.

A preliminary soils investigation of the site was performed in 1974./1/ Two hundred twenty to 250 ft. of non-rock sediments rest upon bedrock, which is composed of rocks of the Franciscan Formation./2/ The arrangement of the sediments is shown in Table 8. The figures in this table are approximate; the geologic units are not of uniform thickness. As the Bay mud and artificial fill are compressible and unstable, the materials have low bearing capacities and are unsuitable as a foundation base. All large buildings in the locality are supported by piles driven into the next layer of geologic material, the dense clayey sand. The underlying old Bay clays are stiff (non-plastic) and capable of bearing heavy loads.

HYDROLOGY

No water bodies, springs or water courses are located on the site. The site is low-lying, and under natural drainage would receive the runoff from the surrounding areas to the north and west. Surface runoff is generally greatest during the wet-weather November-April period.

TABLE 8: SEDIMENTS IN VERTICAL SEQUENCE

<u>Geologic Material</u>	<u>Elevation In Feet Below San Francisco Datum</u>
Artificial fill	0 to about -20
Soft Bay mud	about -20 to about -65
Dense clayey sands	about -40 to about -80
Old Bay clays with sand layer	about -75 to about -165
Dense sand and stiff clay	about -150 to about -250
Surface of bedrock	-220 to -250

SOURCE: Dames and Moore, 1974

The project site is located within the estimated run-up area of a 500-year tsunami (a series of sea waves created by an earthquake, a coastal or submarine landslide or a volcanic eruption at some distance from the point of run-up). A 500-year tsunami would occur on the average of once in 500 years. Assuming a 20-ft.-high run-up at the Golden Gate, the 500-year tsunami would run up 10 ft. above mean sea level and therefore inundate the site under an estimated 1 or 2 feet of water. The 100-year tsunami might also inundate the site./3/

The groundwater level in the upper fill material in this area has normally been approximately at Elevation -10 (SFD) but has fluctuated over the past few years due to dewatering for construction. The water level in the sands is believed to be rising again to the Elevation -10 level./4/

NOTES - Geology and Hydrology

/1/ Dames and Moore, 1974, Preliminary Soil Consultation, Proposed Office Buildings, California/Davis Street Property, San Francisco, California, for Cahill Construction Company, plates 2 and 3.

/2/ Franciscan rocks are typical of the northern California Coast Ranges and underlie the hills of San Francisco. They consist of a mixture of dark colored muddy sediments, red, green and brown cherts and lava flows of black basalt, all material laid down on the floor of the Pacific Ocean about 100 million years ago. Cherts are rocks formed by deposits of silica containing microorganisms, which are transformed into hard, waxy or porcelain-like rocks. See Roadside Geology of Northern California, David D. Alt and Donald H. Hyndman, Mountain Press Publishing Company, Missoula, Montana, 1975. Also known as Franciscan Formation or Franciscan Assemblage.

/3/ Garcia, A.W., and J.R. Houston, 1975, Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound, Technical Report H-75-17, Hydraulics Laboratory, U.S. Army Engineer Waterways Experiment Station, P.O. Box 631, Vicksburg, Mississippi, 39180.

/4/ Dames and Moore, 1974 op. cit., p. 3.

K. SEISMICITY

No active faults (faults which have a historic record or other geophysical evidence of movement within approximately the last 10,000 years) are known to exist within the City of San Francisco. Several active faults affect San Francisco; these are the San Andreas Fault, about 10 miles southwest of the site; the Hayward Fault, about 15 miles to the east; and the Calaveras Fault, about 30 miles to the east (see Figure 22).

Both the San Andreas and the Hayward Faults have a history of major and minor movements. Earthquakes can be expected in this region in the future. Within the next 60 to 170 years (estimates of recurrence intervals vary), at least one earthquake of the magnitude of the 1906 San Francisco earthquake (about 8.3 on the Richter scale of magnitude, a logarithmic scale developed by Charles Richter to measure earthquake magnitude by the energy released) and several earthquakes comparable to the 1957 Daly City earthquake (about 5.3 on the Richter Scale) can be expected to affect the proposed building.

According to John A. Blume's San Francisco Seismic Safety Investigation, Geologic Evaluation (1974), potential earthquake hazards on the project site include "violent" ground shaking (defined as causing a fairly general collapse of brick and frame structures when not unusually strong, serious cracking of better building, lateral displacement of streets, and ground fissuring), liquefaction (the transformation of granular material, such as loose wet sand, into a fluid-like state similar to quicksand) with resultant lateral ground slippage and bearing capacity failure, and subsidence (the sinking of the land surface due to settling of compressible soils). Preliminary information based on adjacent sites leads B. Kacyra, the President of Earthquake Engineering Systems, Inc. (the geotechnical consultant), to believe that there is no liquefaction, soil stability, or ground rupture hazard at the site. (letter communication, 26 October 1978).

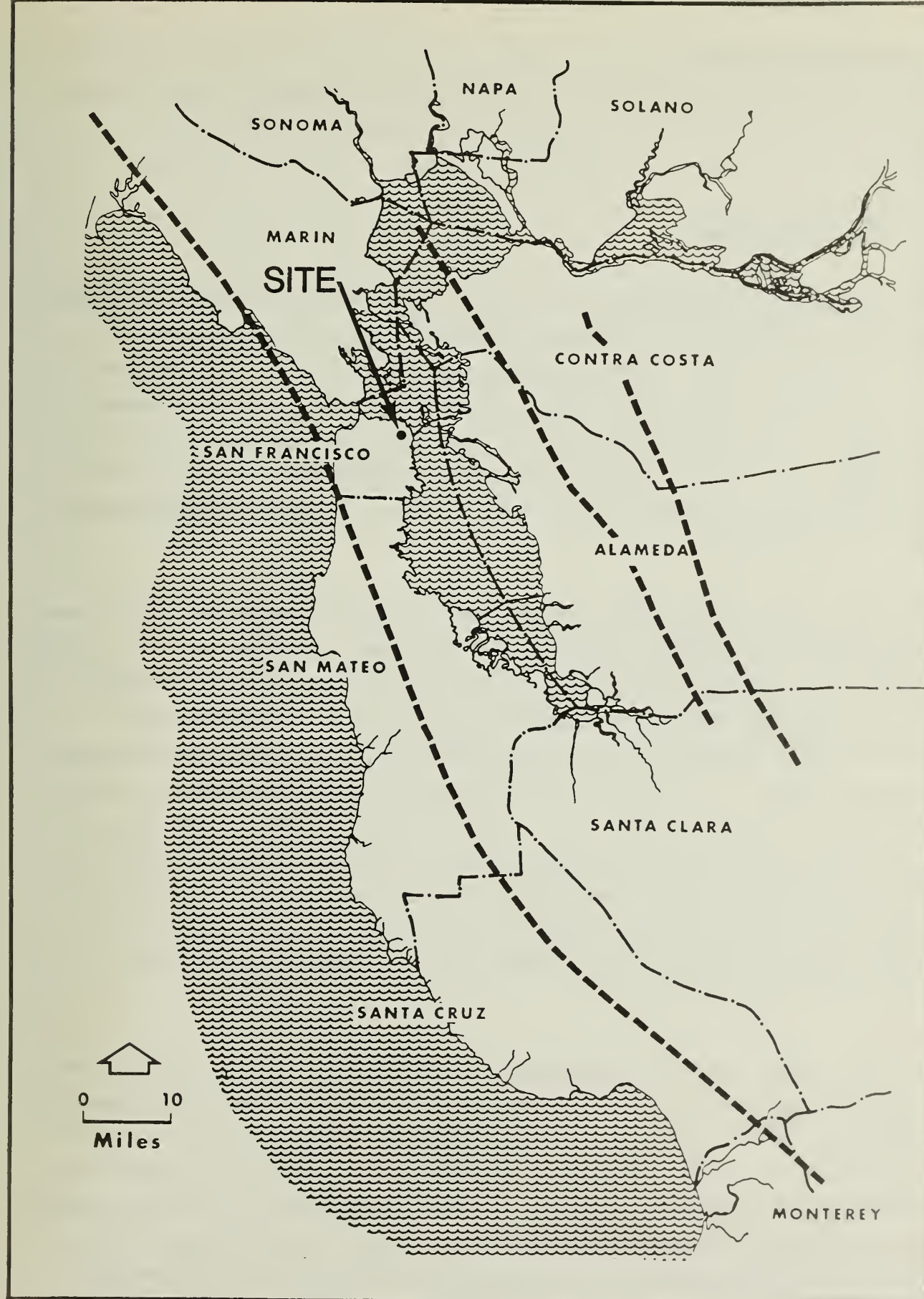


FIGURE 22 MAJOR ACTIVE FAULTS IN
SAN FRANCISCO BAY AREA

A. LAND USE AND ZONING

The proposed use of the project site for an office structure would comply with the general objectives of the Comprehensive Plan and with the statement of policy in Section 210.3 of the City Planning Code that the C-3-0, Downtown Office District, is "playing a leading national role in finance, corporate headquarters and service industries, and serving as an employment center for the region. . . . Unrelated uses (are) excluded in order to conserve the supply of land in the core and its expansion areas for further development of major office buildings."

The project would also comply with the maximum permitted height of 600 ft. and maximum permitted diagonal dimension of 200 ft. above a height of 150 ft. The diameter of a circle is deemed equivalent to the diagonal of a rectangular building under the provisions of Section 270 of the City Planning Code according to R. Passmore, Acting Zoning Administrator (personal communication, 31 October 1978). It has also been interpreted to be the length of a circular building under the same provisions. Since this measurement for the project is 190 ft. and the City Planning Code limitation in the 600-I Height District is 170 ft., the project sponsor would apply to the City Planning Commission for an exception from that bulk limitation under Section 271 of the Code, in accordance with the procedure for Conditional Use approval set forth in Section 303 of the Code.

The length limit of 170 ft. may be exceeded "to a certain degree", according to Section 271 of the Code, if the project would result in the "achievement of a distinctly better design, in both a public and a private sense, than would be possible with strict adherence to the bulk limits, avoiding an unnecessary prescription of building form while carrying out the intent of the bulk limits and the principles and policies of the Master Plan." The appearance of bulk in the building must be reduced by means of at least one of the following factors: "major variations in the planes of wall surfaces, in either depth or

direction, that significantly alter the mass; significant differences in the heights of various portions of the building . . . that divide the mass into distinct elements; differences in materials, colors or scales of the facades that produce separate major elements; compensation for those portions of the building . . . that may exceed the bulk limits by corresponding reduction of other portions below the maximum bulk permitted." In every case the building must be made compatible with the character and development of the surrounding area by means of all the following factors: "a silhouette harmonious with natural land forms and building patterns, including the patterns produced by height limits; either maintenance of an overall height similar to that of surrounding development or a sensitive transition, where appropriate, to development of a dissimilar character; use of materials, colors and scales either similar to or harmonizing with nearby development; and preservation or enhancement of the pedestrian environment by maintenance of pleasant scale and visual interest."

The Basic Floor Area Ratio (FAR) of 14:1 for the site would allow 1,059,000 gross sq. ft. of building area on the site under the C-3-0 classification, exclusive of bonuses. The project would include about 1,306,000 gross sq. ft. The additional area is based on development bonuses as provided in Chapter II, Article 1, Section 126 (formerly Section 122.3) of the San Francisco City Planning Code.

Under this provision of the City Planning Code, the basic floor area allowed in structures in C-3-0 districts can be increased by floor area bonuses which may be granted for design features that improve transit and pedestrian access to the building, increase open space, and arrange buildings to provide light and air to streets and other properties.

The project qualifies for bonus floor areas for proximity to rapid transit, multiple building entrances, widened sidewalks, shortened walking distances, and plaza area.

Appendix N, p. 222, outlines the floor area bonuses for each of these features. A more detailed discussion of applicable floor area bonuses is available for public review at the Department of City Planning, Office of

Environmental Review, 45 Hyde St., Room 319. The project would be allowed a total floor area of 1,374,000 sq. ft. This is 68,000 sq. ft. greater than the 1,306,000 gross sq. ft. actually proposed for construction.

Because of the proximity of the project site to Market St., the plans would be subject to discretionary review by the City Planning Commission under the provisions of its Resolution No. 6111, adopted on 29 June 1967. This resolution established "a policy of reviewing under its discretionary powers all applications for new and enlarged buildings along Market St. from the Central Freeway to San Francisco Bay." The review would be "especially in terms of relationship to the street, heights, cornice lines, setbacks and the placement and shaping of building towers, in order to promote the attractiveness, continuity and integrity of the street and its functions."

B. URBAN DESIGN AND VISUAL ASPECTS

MARKET ST. BEAUTIFICATION AND CALIFORNIA ST. CONSTRUCTION

The project, including a plaza with floral displays, would extend the ambience created at the Market St. pedestrian level northward to the site. On California St., in contrast to the canyon effect caused by the wall of building facades on the property line extending from Front St. to Montgomery St., the proposed project would create a plaza. According to the architects' intent, the plaza would reinforce the small plazas currently existing at California and Davis Sts., formed by the setback of the buildings at 1, 50, and 100 California St. The proposed plaza would emphasize the openness of this lower end of California St. (see Figure 23).

ARCHITECTURAL RESOURCE REMOVAL

Project construction would require demolition of 64 Pine St., the 57.5-ft.-wide 7-story building containing 27,300 sq. ft. which was deemed to have a "vernacular classical root" style and rated "1" by the 1976 Architectural Inventory (see Appendix A, p. 191) and "C" in the Heritage Foundation survey. Project construction would also require demolition of 2 Pine St., rated "B" in the unpublished San Francisco Heritage Foundation



FIGURE 23 PROJECT MODEL SUPERIMPOSED
ON AERIAL PHOTO OF SITE

architectural and historical survey. 124 Front St., 136 Front St., 140 Front St., and 146-150 Front St., rated "C", and 135-141 California St., 111 California St., and 50 Pine St., rated "D" in the Heritage Survey (see Appendix B, p. 192) would also be demolished.

The proposed plaza would provide a foreground and open up the view of the eclectic group of buildings at 134, 150, and 160 California St., which are cited in the 1976 Architectural Inventory.

PROJECT ARCHITECTS

The well known architectural firm of Johnson/Burgee, which won the Reynolds Award in 1977, designed the proposed building. Mr. Johnson, an architect for over 30 years, has designed over 35 major projects and received 20 professional honors and awards. In 1977, the American Institute of Architects awarded him a Gold Medal, its highest award for architecture. Mr. Burgee, in practice for over 20 years, has designed over 20 major projects and has received 4 professional honors and awards.

RELATIONSHIP OF PROPOSED PROJECT TO THE COMPREHENSIVE PLAN

The Urban Design Element of the San Francisco Comprehensive Plan provides a basis in City policy for summarizing the urban design implications of the proposed project. This summary is shown in Table 9.

VISUAL IMPACTS

The project would alter the present appearance of the site, which includes vacant land used to store construction equipment, and commercial structures ranging from 2 to 9 stories the style of which reflects early 20th century construction. The size and location of the project would allow portions to be seen from many close-range and long-range vantage points. From Yerba Buena Island (the San Francisco-Oakland Bay Bridge), for example, the tower portion of the project would be visible, as a somewhat higher element in the cluster of high-rise structures west of the San Francisco waterfront (see Figure 24, p. 66). The faceted, cylindrical tower, and its light-colored surfaces of

TABLE 9: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE SAN FRANCISCO COMPREHENSIVE PLAN
AND THE PROPOSED PROJECT*

APPLICABLE URBAN DESIGN POLICIES

A. Policies for City Pattern

1. Policy 1. Recognize and protect major views in the City, with particular attention to those of open space and water (p. 10).

2. Policy 3. Recognize that buildings, when seen together, provide a total effect that characterizes the City and its districts (p. 10).

3. Policy 6. Make centers of activity more prominent through design of street features and by other means (p. 12).

4. Policy 8. Increase the visibility of major destination areas and other points for orientation (p. 13).

RELATIONSHIP OF PROJECT TO APPLICABLE POLICIES

The project site is adjacent to, but outside of, the Pine St. view corridor. While the project would interrupt some private views toward the Bay from some buildings west of the project site, particularly from the higher floors, these would not be considered "major views" in the meaning of the Plan.

The proposed project would occupy a prominent position in views of the downtown San Francisco skyline. It would join other comparably sized high-rise towers in the Downtown business district, which collectively provide the major visual identification of this district of the City.

The principal public amenity would be provided by the proposed outdoor landscaping planters which would contain blooming plants throughout the year. The Plan provides that street landscaping should be used, and that sidewalk treatment should be coordinated with . . . benches and other elements suitable for use by merchants, shoppers and others. The proposed project would have seating on the planters; bicycle racks and public shelter in the plaza on along retail frontages would not be provided.

The setbacks and reversed faceting at the top of the cylindrical tower would give the building an identity on the skyline as a point of orientation. See Item 2 above

TABLE 9: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE SAN FRANCISCO COMPREHENSIVE PLAN
AND THE PROPOSED PROJECT* (Continued)

B. Policies for Conservation

5. Policy 4. Preserve notable landmarks and areas of historic, architectural or aesthetic value, and promote the preservation of other buildings and features that provide continuity with past development (p. 25).

Project implementation would result in the demolition of a building, located at 64 Pine St., included in San Francisco Architectural Inventory and several buildings included in the Heritage Survey (see Section III.C. p. 31). None of the buildings on the site is listed in Here Today.

6. Policy 6. Respect the character of older development nearby in the design of new buildings (p. 25).

The seven-story base structure of the proposed tower would help provide a transition in scale from comparably sized neighboring structures to the tower (see also Item 7 below). The light-colored natural stone and arcade-like window treatment would be parallel to that of nearby older structures, such as the PG & E building. The cylindrical tower would represent a departure in architectural style and character from both old and new development in the vicinity of the site.

C. Policies for Major New Development

7. Policy 1. Promote harmony in the visual relationships and transitions between new and older buildings (p. 36). The Plan states, "where new buildings reach exceptional height and bulk, large surfaces should be articulated and textured to reduce their apparent size and to reflect the pattern of older buildings."

The cylindrical portion of the proposed structure is "articulated and textured" by the saw-tooth configuration of glass and natural stone around the tower exterior. The arcade-like windows of the seven-story base structure would be inset 12 to 18 inches to provide a shadowing effect and the base structure would be surfaced with natural stone.

TABLE 9: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE SAN FRANCISCO COMPREHENSIVE PLAN AND THE PROPOSED PROJECT* (Continued)

The Plan also provides that "... the lower portions of buildings should be designed to promote ... good relations among open spaces and maximum penetration of sunlight to the ground level."

The proposed plaza would reinforce the quasi-plaza which now exists across California St. at Davis St. (see Section IV.B, p. 58). It would bear little spatial relationship to the neighboring Mutual Benefit Life plaza or the adjacent "beautified" portion of lower Marekt Street. Because the plaza would be located northerly of the proposed tower, it would be partially to completely shaded throughout most daylight hours at all times of the year (see Section IV.B, p. 70).

8. Policy 2. Avoid extreme contrasts in color, shape, and other characteristics which will cause new buildings to stand out in excess of their public importance (p. 36). According to the Urban Design Plan "unusual shapes, especially in large buildings, should ... be reserved for structures of broad public significance, such as those providing community-wide services."

While the basically cylindrical shape of the proposed project would be "unusual", the structure would not have "broad public significance" within the meaning of the Plan. The combination of light-gray glass and light-colored natural stone exterior materials would impart medium-to light-colored values to the tower. These values would shift depending upon time of day and natural lighting conditions, but would be generally consistent with the intent of the Plan.

9. Policy 4. Promote building forms that will respect and improve the integrity of open spaces and other public areas (p. 36). The Plan provides that new buildings should not block significant views of public open spaces, especially large parks and the Bay." The Plan also provides that "buildings to the south, east and west of ... plazas should be limited in height or effectively oriented (to permit the penetration of sunlight to such plazas)."

The proposed project would be generally consistent with this policy (see Item 1, above).

The location of the proposed tower (and west of the Mutual Benefit Life building) would place it at least partially in shade throughout most daylight hours at most times of the year (see Item 7 above and Appendix O, p.224),

TABLE 9: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE SAN FRANCISCO COMPREHENSIVE PLAN AND THE PROPOSED PROJECT* (Continued)

10. Policy 5. Relate the height of buildings to important attributes of the City pattern and to the height and character of existing development (p. 36).	The height of the proposed tower is consistent with the City's height limits established after adoption of the Plan and in conformity with it. The height pattern would create a downtown envelope rising to a height of 700 ft. along the Market St. corridor and dropping to a low of 84 ft. at the Bay shore east of the project site.
11. Policy 6. Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction (p. 37).	The building would be less bulky than 100 California St. which has a length of 234 ft., the Union Bank which has a length of 200 ft., the Hyatt Regency Hotel which has a length of approximately 400 ft. and the Southern Pacific Building at One Marekt Plaza which has a length of 275 ft.
D. <u>Policies for Neighborhood Environment</u>	
12. Policy 3. Provide adequate lighting in public areas (p. 55).	Twelve 250-watt fixtures would be installed for security lighting on the plaza.
13. Policy 4. Design walkways and parking facilities to minimize danger to pedestrians (p.55).	Pedestrian circulation within the project site would be separate from vehicular circulation. As suggested by the Plan, pedestrian walkways pass through the interior of the block.
14. Policy 12. Install, promote and maintain landscaping in public and private areas (p. 57).	The proposed plaza would have 2 landscaping planters, which would contain flowering plants through the year. The main, glass-enclosed lobby would be landscaped with a minimum of 20 trees in containers.

TABLE 9: RELATIONSHIP BETWEEN APPLICABLE URBAN DESIGN POLICIES OF THE SAN FRANCISCO COMPREHENSIVE PLAN
AND THE PROPOSED PROJECT* (Continued)

15. Policy 13. Improve pedestrian areas by providing human scale and interest (p. 57). The Plan indicates that sidewalk paving and furnishings may make walking more pleasurable, that "gentle changes in level have the same effect", and that "in commercial areas, continuous and well-appointed shop windows and arcades are invitations to movement."

Except for the landscaping planters mentioned above, the proposed plaza and sidewalks would have no outdoor street furnishings (such as bike racks or shelter), or arcades. The level of the plaza would change by about 14 inches one side to the other. Street and plaza frontages, not devoted to entrances or the building lobby, would be occupied by retail shops, restaurants, and similar use with shop windows.

16. Policy 14. Remove and obscure distracting and cluttering elements (p. 57).

Distracting elements such as parking and utilities would be underground, out of public view. Design of signs, directories, and any other graphics would be controlled to avoid garish or otherwise distracting appearances.

*The Urban Design Element of the San Francisco Comprehensive Plan, City and County of San Francisco, August 1971.



ONE MARKET PLAZA ↑
FERRY BUILDING ↑

↑ PROJECT

↑ BANK OF AMERICA

↑ TRANSAMERICA BUILDING

FIGURE 24 VIEW FROM YERBA
BUENA ISLAND

glass and natural stone would be visible, depending upon time of day and clarity of the atmosphere. The two proposed setbacks at the top of the tower and reversal of faceting at the setbacks would increase visibility and recognizability of the tower on the skyline.

In views of the project from the Marin County side of the Golden Gate Bridge, the tower would appear as an additional element among high-rise structures at the eastern end of San Francisco's business district, somewhat higher than immediately adjacent buildings, but not the tallest on the skyline (see Figure 25).

Street-level views of the project from surrounding blocks would vary from views of the plaza, base and tower to views of portions of the tower (see Figure 26, p. 69). From Market St. near Davis St., at the plaza south of the Mutual Benefit Life building and near the PG&E building, the glass-enclosed lobby, the plaza areas near California St., the southeastern corner of the triangular, 7-story base, and the full height of the tower would be visible. This would block views of the 33-story 100 Pine St. building, and replace present views of the east facade of the nine-story 64 Pine St. building on the site. Similar views would be available from south of Market St. on Beale St.; as one moved east along Market St., the Mutual Benefit Life building would begin to mask the foreground views of the project. From Market St. between Front St. and Davis St., the upper stories of the tower would be visible above the nine-story office structure fronting Market St. From points further west on Market St., views of the project would become masked by the 444 Market St. structure now under construction, and other existing high-rise structures.

The west facade of the base and the tower itself would be visible on Front St. from Market St. to California St., and north of California St., views would include the plaza, the base and tower. Further north along Front St., and from pedestrian bridges and upper plazas of the Embarcadero Center north of Sacramento St., most of the tower would be visible, because of the relatively low-rise development on Front St. between California St. and Sacramento St. Other partial views of the base, plaza and tower would be seen from streets within a one-block radius of the site, but beyond this distance, views would be intermittently blocked by existing high-rise buildings or buildings now under construction.



↑ COIT TOWER

↑ **PROJECT**

↑ EMBARCADERO CENTER

↑ TRANSAMERICA BUILDING

↑ BANK OF AMERICA

FIGURE 25 VIEW FROM GOLDEN
GATE BRIDGE VISTA POINT



A. Street level from Davis St. near Sacramento St. between Two and Three Embarcadero Center south to Market St.



B. Skyline northwest from The Embarcadero near the San Francisco - Oakland Bay Bridge.



C. From street level, the PG&E Building on Market St. between Main and Beale Sts. northwest to site. The Mutual Benefit Life Building is on the right.

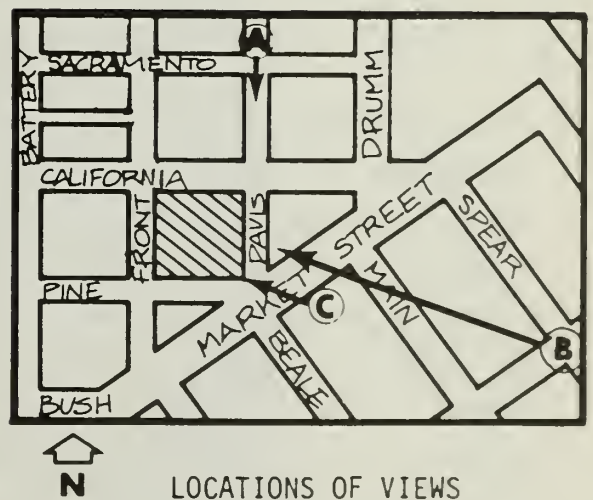


FIGURE 26: VIEWS OF PROJECT AND AREA MODEL

The project would partially block views to the east from upper floors of 100 Pine St. and 201 California St.; views to the north from 444 Market St., 333 Market St., One Metropolitan Plaza (Market and Fremont Sts.) and the Pacific Gas and Electric Company tower between Market and Mission Sts. on Beale St., and views to the south from the Embarcadero Center towers.

CUMULATIVE VISUAL IMPACTS

Figure 27 illustrates office buildings proposed or under construction in the San Francisco Downtown business district, as well as 101 California St. that would be visible from points on the San Francisco-Oakland Bay Bridge or Yerba Buena Island. The structures include the office buildings at Howard and Main Sts., 333 Market St., 444 Market St. and Four Embarcadero Center, under construction, and the proposed Pacific Gateway building. The 500-ft. Crocker National Bank Headquarters proposed at Kearny and Post Sts. would not be seen from the viewpoint.

Structures proposed or under construction Downtown that would be visible from the Marin vista point at the north end of the Golden Gate Bridge are shown in Figure 28, p. 72. These include 444 Market St. and Four Embarcadero Center which are under construction and the proposed Crocker National Bank Headquarters.

LIGHT AND SHADOW EFFECTS

The City's urban design Policy 4 for Major New Development (San Francisco Comprehensive Plan, Urban Design Element, p. 36) states that "buildings to the south, east and west of parks and plazas should be limited in height or effectively oriented so as not to prevent the penetration of sunlight to such parks and plazas". The plaza proposed as part of the project is to the north of the project tower. The Mutual Benefit Life plaza (One California St.) is to the east of the project, and the plaza at the Union Bank building (50 California St.) and Robert Frost Plaza at California and Market Sts. are to the northeast of the project. The shopping plazas of the Embarcadero Center are two blocks north of the project. Restaurants and other retail services on Front St. and California St., north of the site, are used by pedestrians during midday hours.

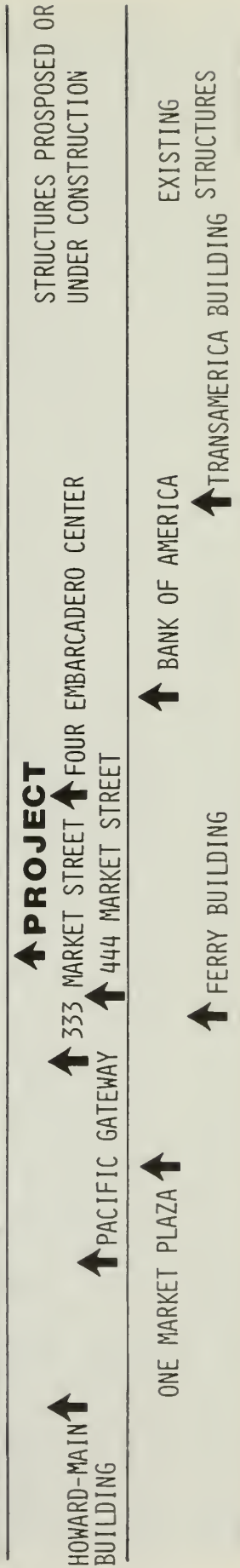


FIGURE 27 CUMULATIVE VISUAL IMPACT - VIEW FROM YERBA BUENA ISLAND

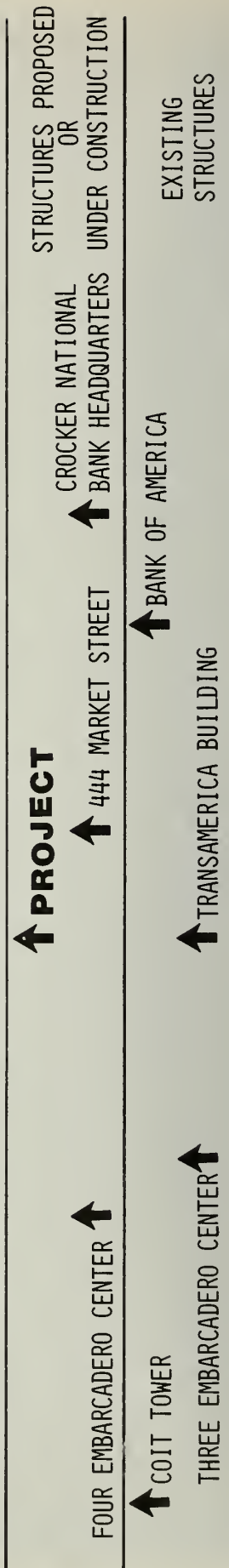
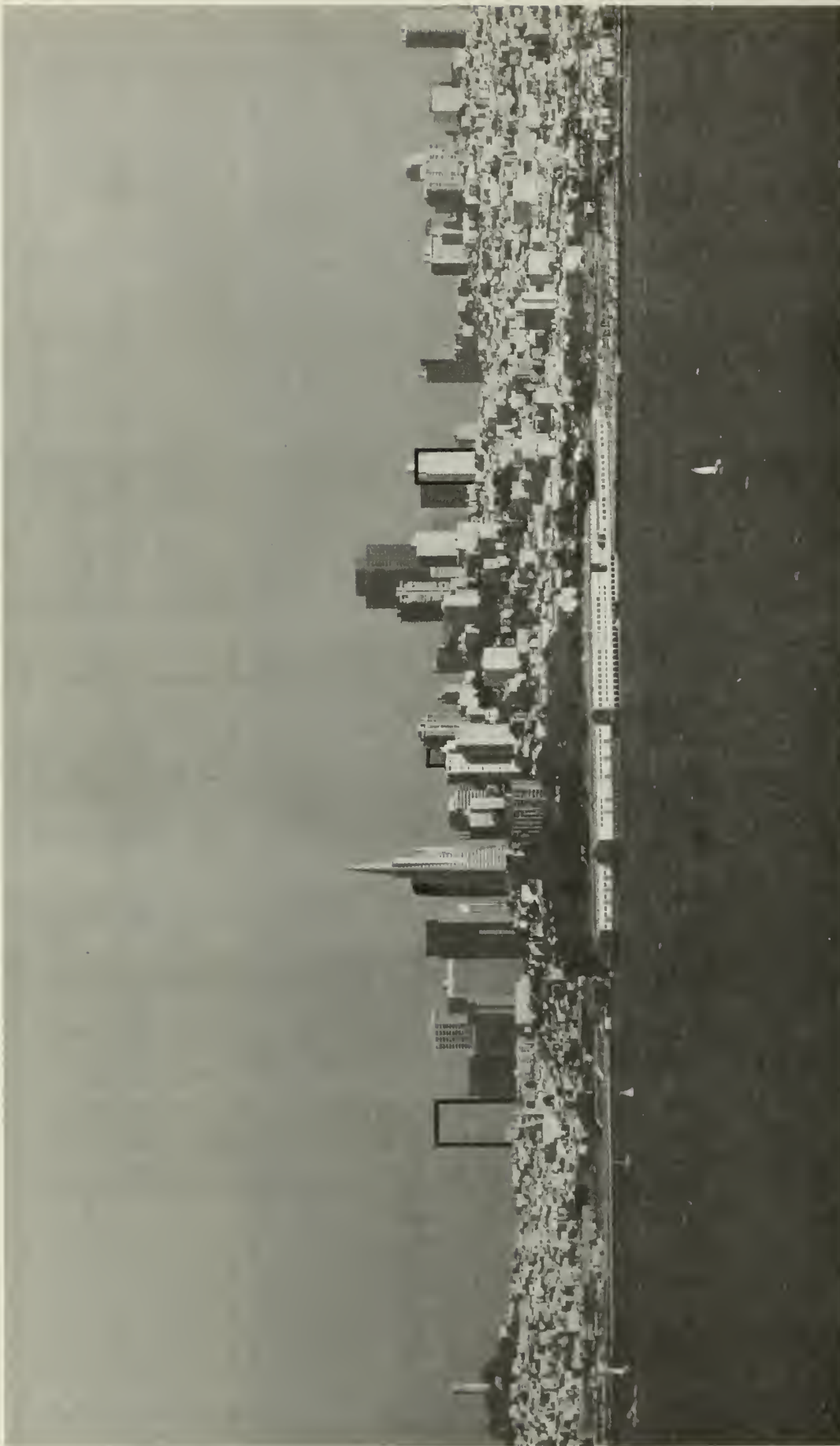


FIGURE 28 CUMULATIVE VISUAL IMPACT - VIEW
FROM GOLDEN GATE BRIDGE VISTA POINT

These open spaces would be affected by shadows cast by the 600-ft. tower, depending upon the time of day and seasons of the year. (Photographs of the projected shadow patterns are included in Appendix O, p. 224.)

During spring and fall in the early morning, the Mutual Benefit Life building would cast shadows on the 101 California St. plaza. From mid-morning to mid-afternoon, the project tower would cast shadows on Front St. and California St., the project plaza, the Union Bank plaza, and Robert Frost Plaza. The latter is also affected by shadows from the Mutual Benefit Life building. During late afternoon, the project would cast shadows on the Mutual Benefit Life plaza.

During winter months, the project would cast mid-day shadows on the proposed plaza, on California and Front Sts., the Union Bank plaza and the Mutual Benefit Life plaza. Around noon, the project would cast shadows on the podium level shopping area of Two Embarcadero Center (see Figure 29).



FIGURE 29 PROJECTED SHADOW PATTERN
MID-DECEMBER 12:00 NOON

The Mutual Benefit Life building would cast shadows on the project plaza during summer morning hours and the project tower would cast shadows on this plaza from about 11 a.m. to 2 p.m. The project would cast mid-afternoon shadows on the Mutual Benefit Life plaza, and Market St. near Davis St.

WIND EFFECTS

The changes the proposed building would make in wind directions and velocities at pedestrian level have been studied by the use of models in a wind tunnel to simulate natural winds near the ground (see Appendix P, p. 223 for text of study). Tests were conducted for northwest and west winds, the most common wind conditions in San Francisco. Wind speeds at pedestrian levels were evaluated as a percentage of the wind speed measured by the Weather Service at the top of the Federal Building at 50 United Nations Plaza; this is the wind reference point nearest the site.

Existing wind speeds at the project site are generally low to moderate; from 14% to 47% of the wind speed as measured by the Weather Service during northwest wind conditions and from 23% to 48% of the wind speed as measured during west wind conditions. Moderate to moderately high wind conditions, caused by the 32-story Mutual Benefit Life building, exist in the Mutual Benefit Life plaza at Market and Davis Sts. At the California and Davis Sts. intersection, moderately high winds of 53% and 55% exist under northwesterly and westerly wind conditions, respectively. These result from the "canyon" effect of existing highrises to the west along California St.

The project and landscaping planters as proposed would not cause increased wind speeds on the sidewalk around the project site. The cylindrical tower design would have generally less impact on wind speeds than would a rectangular tower. Moderately high winds might occur on Davis St., near the project tower, during northwest winds. Wind conditions would be low to moderate on the project plaza. Turbulence would occur at the building entrances on the plaza. Wind speeds at these locations would not cause pedestrian discomfort, but the cylindrical design of the structure would create localized wind swirls, resulting in an accumulation of dust and litter at the entrances. This problem would be aggravated under northwest wind

conditions where moderately high winds moving from the plaza around the tower along the Davis St. sidewalk would add to the turbulence at the southeast entrance.

Winds in the Mutual Benefit Life plaza are moderate to moderately high. During northwesterly winds, the project would increase wind speeds on portions of the plaza to moderately high to high; wind at the corner of Market, Pine and Davis Sts. where pedestrians would wait to cross the street would decrease. The project would have no effect on the Mutual Benefit Life plaza during westerly winds.

Wind speeds on the northeast corner at the intersection of California and Davis Sts. would increase during westerly and northwesterly winds by about 6%. Wind speeds would decrease on the other three corners.

C. CULTURAL AND HISTORIC ASPECTS

The building excavation would extend to a depth of about 23 ft. below the existing surface. As the site was under water until filled about 125 years ago, it is unlikely that any intact cultural or historic materials or artifacts would be encountered, except for the possibility of fragments from unrecorded sunken ships.

D. COMMUNITY SERVICES AND UTILITIES

See the end of this section for a list of persons consulted in its preparation.

Police. According to Captain C. Murphy of the San Francisco Police Department's Central Station, the project would result in an increase in petty theft incidents as it would increase the employee population on site. The increased number of parking spaces provided in the proposed underground parking levels of the building could add to the number of auto-related crimes on the project site. Captain Murphy does not anticipate that any additional police officers would be required./1/

Internal security in the proposed building would be provided by a 24-hour security guard force. Closed-circuit television cameras would survey the plaza and all entrances and exits. The closed-circuit television would be viewed by security guards at the information and alarm monitoring station within the building. After-hours access to the building would be available with the use of an electronic access card./2/ Project security measures are described in Section V, p. 118, of this report.

Fire. The project would incorporate the fire protection measures required by the San Francisco Building Code, including a sprinkler system throughout the building and garage. According to City Fire Marshal W. Graham, the proposed building would not require additional fire-fighting manpower or equipment./3/ Existing water distribution systems would be adequate to provide fire flows for the project. Project fire protection measures are described in Section V, p. 119.

Water. Domestic water could be provided from existing Water Department mains. No enlargements or relocations of mains would be required. The street from which water service would be extended to the building would have to be excavated from the main to the site. This expense would be borne by the project sponsor. One lane of traffic would be disrupted from one to three days./4/

Estimated water demand for the project when fully occupied would be 150,000 gallons per day, over 10 times the current use at the site./5/ This would be about 0.2% of the average daily San Francisco water use of 79.1 million gallons in 1978. Cumulative Downtown development (see Appendix Q, p. 252) for a list of buildings considered, including the proposed project, would use an estimated 2,759,000 gallons per day, 3.5% of the average daily San Francisco water use.

During the 2- to 3-year period of project construction, an estimated 1.4 million gallons of water would be used at the construction site./6/

Sewer. At full occupancy, wastewater flows generated by the project would be expected to be approximately 150,000 gallons per day. There is sufficient sewer capacity to accommodate projected flows and no mains would have to be

removed or enlarged. The North Point Water Pollution Control Plant would be able to provide treatment for the dry-weather flows./7/ Wastewater flows from the project would constitute about 0.3% of the average daily dry-weather flow of 52 million gallons to the North Point Water Pollution Control Plant. The increased flows generated by the project would contribute to existing storm overflows of sewage into the Bay during wet weather until projects now under design to reduce these overflows are completed./8/ During the construction period, dewatering of the site would be required for an estimated eight-month period. A total of 35 million gallons would be discharged into the sewers (see Section IV.J, p. 111) during this period at the rate of about 150,000 gallons per day./9/

Cumulative Downtown development (see Appendix Q, p. 252), including the project, would generate approximately 1,395,000 gallons of wastewater per day, 2.7% of the average daily wastewater flows to the North Point Plant.

Solid Waste. According to the guidelines developed by the State Solid Waste Management Board, the proposed project would generate approximately 6.5 tons per day of solid waste./10/ This is over 3 times the solid waste currently generated on the site. It would represent less than 1% of the Golden Gate Disposal Company's current daily volume of about 1,500 tons. Golden Gate Disposal Company anticipates that this projected load would require 6 daily collections per week by a compactor truck. There would be no difficulty in accommodating this demand./11/ Cumulative Downtown development (see Appendix Q, p. 252), including the proposed project, would generate an estimated 71.6 tons of solid waste per day, about 4.7% of the current daily volume collected by Golden Gate Disposal Company.

During project construction, approximately 65,000 cu. yds. of excavated materials would be removed from the site to a private landfill. The landfill site has not been determined, but it would probably be located in the vicinity of San Francisco Airport or Redwood Shores in Redwood City./12/

Telephone. To provide telephone service, Pacific Telephone and Telegraph would lay conduit from the existing lines in Pine St. for 1-1/2 blocks down Pine and Front Sts. to the project site. The new line would probably enter the proposed building on Front St. as existing systems are located there.

Construction activities would disrupt 1 lane of traffic along these streets at night for up to 90 days. No residential areas would be affected by the nighttime construction. The company anticipates no difficulty in providing complete service to the project./13/

NOTES - Community Services and Utilities

/1/ C. Gain, Chief of Police, San Francisco Police Department, letter communication, 23 October 1978, and C. Murphy, Captain, Central District Station, San Francisco Police Department, telephone communication, 6 October 1978. The letter from Chief Gain is available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319.

/2/ F. Davis, Senior Property Manager, Gerald D. Hines Interests, letter communication, 6 October 1978.

/3/ Chief W. Graham, Fire Marshal, San Francisco Fire Department, personal communication, 25 August 1978.

/4/ J. Kenck, Manager, San Francisco Water Department, City Distribution Division, letter communication, 12 October 1978. This letter is available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319.

/5/ The water demand estimate assumes retail/restaurant use of 200 gallons per day and office use of 125 gallons per day per 1,000 sq. ft. of usable floor space; Brown and Caldwell Consulting Engineers, 1972, Report on Wastewater Loading from Selected Development Areas, as cited in San Francisco City Planning Commission and San Francisco Redevelopment Agency, 1978, Final Environmental Impact Report/Yerba Buena Center.

/6/ P. Gilbert, Estimator, Turner Construction Company, letter communication, 9 October 1978.

/7/ J. Dela Cruz, Section Engineer, Civil/Sanitary Division, San Francisco Department of Public Works, letter communication, 31 August 1978. This letter is available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319.

/8/ M. Francies, Bureau of Sanitary Engineering, Wastewater Control Division, telephone communication, 17 October 1978.

/9/ P. Gilbert, op. cit.

/10/ State of California Solid Waste Management board, 1974, "Solid Waste Generation Factors in California."

1,300,000 (gross) sq. ft. x 1 lb. per 100 (gross) sq. ft. per day =
13,000 lbs. or 6.5 tons per day.

/11/ M. Ballestrazze, Personnel Director, Golden Gate Disposal Company, telephone communication, 17 October 1978.

/12/ P. Gilbert, op. cit.

/13/ P. Downey, Engineering Manager, Pacific Telephone and Telegraph Company, telephone communications, 2 September and 7 December 1978.

E. ECONOMIC ASPECTS

SITE-RELATED DIRECT IMPACTS

Office and Retail Space. The project would continue the trend toward higher rents and more intensive use of land in the Downtown business district. Construction of 101 California St. would cause the removal of about 153,000 gross sq. ft. of office space, mostly unoccupied, and add about 1.26 million gross sq. ft. (including the 31,000 gross sq. ft of commercial/office space on the second floor) to the existing 55 million sq. ft. of office space in Downtown San Francisco. This would be a 2% increase over existing total Downtown office space and a 5% increase over Downtown space in high-rise structures. The net increase in leasable office space would be about 1.1 million sq. ft. The project would cause the removal of about 39,000 sq. ft. of leasable retail and restaurant space and would replace it with about 24,000 net sq. ft. of retail, restaurant, and commercial space on the ground floor.

Rents at 101 California St. would range from \$12 to \$25 per sq. ft./1/ These rents would be 3 to 4 times higher than existing rents on the site.

Permanent Employment. Total permanent employment at the project site would be about 3,700 persons as compared to current employment of about 100 persons./2/ About 97% of the workers would hold office jobs. Based on ITEL employees' place of residence, about 1,670 or 45% of the total project employees would be San Francisco residents. Table 10 shows a breakdown of employment by type.

TABLE 10: ESTIMATED MAXIMUM GROSS PERMANENT COMMERCIAL, PARKING AND MAINTENANCE EMPLOYMENT*

Retail/Restaurant	40
Office	3,590
Maintenance & Security	65
Public Parking	<u>5</u>
TOTAL	3,700

*The table assumes 330 net sq. ft. per office employee (based on anticipated employee density of IteI Corporation), 600 net sq. ft. per retail and restaurant employee, and zero vacancy, and represents a probable maximum daytime population of 3,700.

IteI Corporation, a San Francisco-based company involved in financing and capital equipment leasing, would lease about 1/3 of the total project office space, vacating space it currently occupies at One and Two Embarcadero Center and other space into which it plans to expand until the completion of 101 California St. According to K. Hubbard, Vice President of Gerald D. Hines Interests, (letter communication, 8 August 1978), no other tenants are committed at this time. The project sponsor anticipates that 101 California St. offices would attract accounting and law firms, regional and corporate headquarters, insurance, real estate, and stock brokers.

Most retail and commercial tenants would serve the office population of the proposed and nearby buildings. Tenants expected include restaurants, stationery, jewelry, boutique and flower shops, financial service companies, a commercial bank and a brokerage firm.

Secondary employment and income impacts would result from permanent project employment because each employed person generated additional employment by his or her demands for goods and services. Previous studies have indicated that San Francisco resident employees spend 80% of their disposable income in the

City,/2/ creating secondary income and employment. Based on Intel employees' average annual disposable income (\$21,000 minus 33% taxable gross income), an estimated \$18.7 million of secondary income would be generated in the City. Less secondary income would be generated if the average employee salary were lower than that of Intel (\$13.4 million of secondary income based on an average salary of \$15,000 per year).

Based on Keyser Marston Associates, Inc.'s surveys of Downtown office workers, it is estimated that taxable annual expenditures for meals, apparel, cosmetics and so forth by workers are \$900 per capita (1978 dollars)./3/ Total Downtown expenditures by permanent project employees are estimated at \$3.3 million annually.

Short-Term Construction Employment. It is estimated that the project would require about 850 person-years of construction labor with a construction payroll of \$30 million./4/ This is approximately an average of 340 full-time jobs at any one time during the 2-1/2 year construction period. L. Meyers of Turner Construction Company estimates that about 250, or 70%, of those jobs would be expected to be held by San Francisco residents (telephone communication, 4 May 1979). Secondary temporary employment effects would result from the direct construction employment because each employed person generates additional regional employment opportunities by his or her demand for goods and services. This is estimated to be the equivalent of 765 full-time one-year jobs in the region./5/

Relocation. Thirty-three businesses employing about 100 persons would be displaced from the project site. Interviews were conducted with owners of two of the principal tenant businesses, Paul Hersh Salvage Stores and Leopard Cafe (telephone communications, 26 October 1979). Paul Hersh who operates 3 stores at the site would probably phase out these stores completely, and, although he may seek another San Francisco location, doubts he would be able to locate suitable, comparable space. Alvin Antraccoli, owner of the Leopard Cafe, stated that he would probably go out of business because his restaurant is very dependent on an established clientele built up since 1949 and he could

not afford rent for comparable space. The retention of small business firms in San Francisco is a goal of the Mayor's Office of Economic Development. This Office, through its Neighborhood Business Revitalization program, provides relocation advice and loan assistance to displaced firms./6/

Assessed Valuation and Property Taxes. The fair market value of the project would be estimated at \$97.4 million (in 1978 dollars). A table titled "Estimates of Project Value and Property Tax," containing the calculations on which this estimate is based is on file at the Department of City Planning, Office of Environmental Review. Both the construction cost approach (based on land, financing, and leasing costs as well as demolition and construction costs) and the potential income approach to fair market value are estimated in the table. The property would have an estimated \$24.4 million assessed value, and would generate between \$1,000,000 to \$1,200,000 total property tax revenues annually (in 1978 constant dollars). Appreciation of land value and escalation of construction costs is expected before fiscal year 1982-1983; however, estimates are given in constant dollars. Both the low and the high tax estimates assume the existing tax structure, full occupancy, and appraisal of market value based on income potential. The low estimate is based on a tax rate of \$4 per \$100 assessed value. The high estimate is based on a tax rate of \$5 (the \$4 maximum composite tax rate allowable under Proposition 13 plus the \$1 tax rate for previously approved San Francisco bond debts. The 1978-79 rate is \$5.06.

If the City and County were to receive the same proportion of property taxes as this year, it would receive between \$640,000 and \$770,000 (64% of the \$1,000,000 to \$1,200,00 composite property tax revenues). Until the State legislature enacts new legislation this fiscal year, it is not known how the property taxes would be distributed in the fiscal year 1981-82 or thereafter when the project would be completed. If the State were to take over a greater share of local education costs, the City/County share would increase.

Subtracting the assessed value of the existing land and improvements on the block which total \$2.9 million, the net addition to San Francisco's property tax base would be \$21.5 million. The net increase over existing total composite property tax revenues of \$146,200 (see Appendix D, p. 198) would be between \$854,000 and \$1,054,000.

As it is not known what percentage of the square footage allotted for retail, restaurant, and commercial uses would be occupied by retail establishments, the retail sales tax revenue that would be generated by the project to the City and County and BART cannot be determined. Based on an estimated \$3.3 million of taxable purchases by 101 California St. workers the site would generate an estimated \$33,000 in indirect sales tax to the City and County and \$17,000 to BART. The estimated payroll expense tax generated from the project site would be about \$240,000, depending on number of employees and their earnings. (A table showing assumption and calculations of the payroll expense tax is available for public review at the Department of City Planning, Office of Environmental Review.) In the short run, this tax revenue would not be net revenue, because most of the workers would be relocated from other San Francisco locations. Only as space at 101 California St. and vacated space elsewhere in the City is taken by employees entering the labor market in San Francisco could the availability of new office space at 101 California St. be said to generate incremental (net) new business tax revenues (see the Cumulative section below).

Costs and Net Revenues. Water and sewer operating cost increases would be covered by user charges. Office development in downtown San Francisco does not increase the capital costs required for an upgraded sewer system designed to meet federal legal requirements, due to a special situation in the design of the system. The municipal and industrial wastewaters together with stormwater runoff are transported in a combined wastewater collection system, most of which was constructed in the early 1900's. This type of system, which is common in older communities throughout the U.S., creates special problems in the conveyance and treatment of wastewaters. For instance, the City's

average dry-weather wastewater flow of 100 million gallons per day (mgd) increases to as much as 14 billion gallons per day during storm periods. The major sizing factor for the system is wet-weather flows, which are many times larger than the dry-weather flows.

Public safety costs would not increase in proportion to increases in Downtown daytime population or increases in property value of the block (see Section IV.D, p. 75). Some increases in general government costs could be expected with the increased intensity of uses on the block. Street-related costs, such as maintenance, storm drainage, lighting, and cleaning, would not be measurably affected. According to the San Francisco Unified School District (L. Eickert, Business Manager, telephone communication, 27 November 1978), Downtown office development would have no direct net effect on school expenditures, but would increase the proportion of total school expenditures financed by the property tax.

Cost increases would be expected for several agencies which provide public transit, such as the Muni and BART. According to estimates of project-generated Muni ridership (see IV.F, p. 93), Muni lines serving the site in 1981 would be operating at 65% of total seated and standing capacity (averaged over the 1-hour peak). Muni would not be expected to have to add buses, beyond planned increases in service, to provide peak-hour service to riders from the project (B. Brown, Transit Planner, Muni, telephone communication, 8 May 1979).

About 1,000 trips on BART would be generated each day by the proposed project. At the existing average deficit per trip of \$1.25, this would result in an annual deficit of about \$326,000. The direct sales tax revenues from retail sales at the site and indirect sales tax revenues from purchases in San Francisco by workers at 101 California St. would partially offset this annual deficit. If BART capacity is increased by extending the lengths of trains or by running more trains (reduced headway time), and ridership also increases, the average deficit per commuter would decrease and added costs would be negligible in relation to increased fare revenue. With respect to capital costs, the increased tax base attributable to the project, on which fixed cost BART bond taxes are levied, would enable future bond taxes on existing

property elsewhere in San Francisco to be reduced (W. Belding, Senior Economist, BART, telephone communications, 9 September 1978 and 4 May 1979).

City and County costs attributable to the site can be viewed as the block's proportion of increased costs attributable to Downtown cumulative commercial growth. Increased property taxes (\$547,000 to 677,000) and payroll/business taxes (\$233,000), plus user charges, and continuing sales taxes from the project site would be expected to cover incremental (marginal) costs to the City and County of public services for the project site.

CUMULATIVE AND INDIRECT ECONOMIC AND FISCAL IMPACTS

Downtown Office Space. An increase in Downtown office space does not necessarily mean equivalent citywide increases in office employment (see Appendix E, p. 200). This project plus the 9 other office high-rises which are under construction, and the 6 have been applied for or are in design, totaling 9 million sq. ft., would represent an estimated 5 year supply of office space, assuming absorption at the historic 1970-77 construction rate of 1.76 million gross sq. ft. per year, or an 8- to 9-year supply if the absorption rate should decline to the 1960-1969 rate of 1.03 million gross sq. ft. per year. Due to pent-up demand caused by the current shortage of office space, it is possible that the absorption rate would be higher than either historic rate. If all these buildings were to come on line in the early 1980's, there could be a short-term cumulative impact of oversupply. The oversupply, if it should occur, could have the additional effect of preempting or slowing office development elsewhere in the City, such as the northern Waterfront or South of Market St. The following is quoted from the 1977 Yerba Buena EIR, Appendix D, pp. 34-5. (The words underlined are revised in line with more recent data.)

"According to estimates by the Department of City Planning the financial and administrative district (C-3-0 zoning district), which allows the highest floor area ratios in the City, has a theoretical capacity to accommodate 30+ million sq. ft. of new office space, in addition to the 6+ million sq. ft. available in Yerba Buena Center. Even if site clearance or parking requirements reduce this theoretical capacity in half--to 15 million sq. ft. represents a 12-16 year supply of available high-density office space within the downtown district and YBC at recent absorption rates 1.3 to 1.8 million per year). As pointed out in the Arthur D. Little report to the San Francisco Department of City Planning in 1975,

'These facts suggest the possible desirability of restraining growth north of Market St. in order to accommodate new growth on land already prepared for development in the YBC project area. This strategy would reduce the necessity for demolition and reconstruction in the downtown, and maximize the fiscal benefits derived from construction of new buildings on vacant land'."

Displacement of small service-oriented firms in the Downtown could also encourage conversion and rehabilitation of vacated older warehouse and light-industrial space in San Francisco and vacated older office space outside of the Downtown (W. Evers, Mayor's Office of Economic Development, telephone communication, 8 November 1978).

NOTES - Economic Aspects

/1/ N. Spencer, Senior Sales Consultant, telephone communication, 12 October 1978. The price range question was not specifically for 101 California St. but was quoted as "expected in buildings of construction quality and size comparable to the project."

/2/ San Francisco Department of City Planning, Final Environmental Impact Report, 180 Montgomery Street Building, EE 76.162, July 1977.

/3/ San Francisco Department of City Planning, Draft Environmental Impact Report, Pacific Gateway Office Building, EE 78.61, April 1979.

/4/ P. Gilbert, Estimator, Turner Construction Company, letter communication, 9 October 1978. This letter is available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319.

/5/ City and County of San Francisco, Department of City Planning, Draft Environmental Impact Report: Bank of Tokyo of California Building, EE 74.170, 24 January 1975, (hereinafter referred to as Bank of Tokyo EIR). Based on a construction employment multiplier of 1.9. An explanation of secondary construction employment impact for San Francisco is found on pages 41 and 42. An employment multiplier is a quantitative expression of the extent to which a change in local production induces an overall change in employment. This means that for each San Francisco resident employed as a result of a project additional employment opportunities in the City would be generated by his or her demand for goods and services. As residents tend to spend their incomes in San Francisco, their purchases become income to those who sell goods and services. These sellers, in turn, spend a portion of their income on their own purchases, and so on. The resulting increase in the level of economic activity provides additional jobs.

/6/ G. Oliver, Project Manager, Mayor's Office of Economic Development, telephone conversation, 27 October 1978.

F. TRANSPORTATION, CIRCULATION AND PARKING

DEMOLITION, EXCAVATION, AND CONSTRUCTION

During the estimated 2-1/2 year construction period, transportation impacts would result from trucking movements to and from the site during demolition, excavation, and construction. Demolition activity would generate an average of 10 truck movements per hour in and out of the project site over a 13-week period (F. Dock, Traffic Engineer, TJKM, telephone communication, 8 December 1978). Excavation would generate an average of 36 truck movements per hour over a 10-week period. Construction activity would require 7,500 truck movements to deliver glass, stone, concrete and steel. An additional 7,800 truck movements would be necessary to deliver other construction materials. The average daily number of truck movements would be 35. Trucks would enter the site from California St. and would exit on Davis St.

The transportation impact of the truck traffic would be to increase traffic on the access streets and haul routes. Most trucks would be expected to turn right into the site off California St., trucks turning left across California St. would have to turn from the cable car lane and could temporarily disrupt cable car operations. Trucks queuing eastbound on California St. would force eastbound traffic into the cable car lane. Truck traffic from 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. would conflict with peak-hour traffic. During demolition and excavation, street traffic on Davis St. would be interrupted when trucks leave the site, particularly during the morning peak hour. Trucks would impede morning traffic eastbound on the James Lick Freeway when moving into the left lane to enter the Embarcadero Freeway and exit at Main St. Evening peak-hour traffic would be slowed by trucks moving up the Beale St. on-ramp to the James Lick Freeway or Bay Bridge (F. Dock, Traffic Engineer, TJKM, telephone communication, 8 December 1978). No disruption of street traffic would result from on-site construction-related activities.

PROJECT TRAVEL DEMAND

The analysis of the travel which would be generated by 101 California St. was made in 2 parts. A questionnaire was distributed to the employees of IteI Corporation, the anchor tenant, to determine where they live, how they get to

and from work, where the automobile users park, and what changes in transportation methods might be expected if the corporate offices were moved to 101 California St. and what further changes might result were a direct subway connection to be built to BART and Muni Metro from the project site (see Appendix J, p. 212). A sample questionnaire is available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319. The second part of the analysis addressed the travel generated by the portion of the building, including retail areas, which would not be occupied by ITEL.

The responses to the ITEL questionnaire were used to better define the travel demand from the 1,200 ITEL employees anticipated at the time of building occupancy. An estimate of the amount of travel associated with the ITEL offices was made assuming a trip generation factor of 3.5 person trip ends per employee per weekday.^{1/} A trip end is a one-way trip from an origin (home, for example) to the proposed project or a one-way trip in the reverse direction. Thus, each arrival at and each departure from the project site constitutes a trip end. Using this factor, the ITEL offices would generate about 4,200 person trip ends per weekday; 2,100 would be by automobile, 2,000 by transit and 100 by walking.

An estimate of the amount of travel associated with the non-ITEL portion of the building space follows: using trip generation factors of 12 person trip ends per 1,000 net sq. ft. of office space and 30 person trip ends per 1,000 net sq. ft. of retail space, a total of 10,100 person trip ends per weekday is anticipated. Of these trips about 5,300 would be by transit, 4,700 by automobile and 100 by walking (see Table 11).

The 24-hour automobile travel generated by the project tenants was analyzed. For each of the seven geographic areas considered (North Bay, East Bay, Peninsula and San Francisco divided into 4 sections), an average trip length was estimated and the vehicle-miles travelled were calculated. The total vehicle-miles of travel generated by the project are estimated to be 67,300 vehicle-miles per day with an average trip length of 14 miles one way.

TABLE 11: ESTIMATED 24-HOUR WEEKDAY TRAVEL DEMAND GENERATED BY
101 CALIFORNIA ST.*

<u>Area of Residence</u>	<u>%</u>	<u>Total</u>	<u>Auto</u>	<u>Transit</u>	<u>Walk**</u>
North Bay	9	1,210	780	430	-
Peninsula	16	2,260	1,740	520	-
East Bay	17	2,410	1,130	1,280	-
San Francisco	57	8,420	3,210	5,000	210
TOTAL	100	14,300	6,860	7,230	210

*Retail and office person trip-ends.

**About 210 person trip ends would result from persons walking to and from the site who would not use any other form of transportation. An estimated 13,400 pedestrian trip ends, including midday travel would be made to and from the site each week day. All of these trips, except the 210, would be made by people originally using other modes of transportation.

TRAFFIC IMPACTS

In assessing the new traffic which would be generated by the project in relation to other traffic expected to be on the streets in 1981, the expected year of completion, an expansion factor of 1.8% per year was used to increase the known 1978 traffic volumes to expected 1981 base levels. This annual expansion rate is used by the City and County of San Francisco for planning purposes. It was used by the San Francisco Department of Public Works in its Downtown Parking and Traffic Survey (DPATS) in 1970. When peak-hour traffic volumes grow to equal the capacity of a street, further growth in vehicular flow would not be possible. Consequently, either the peak hour would expand to include other hours, some of the traffic would switch to nearby streets, or there would be a shift to modes of travel other than the automobile.

Table 12 shows the 1981 projected base volumes on streets near the proposed project, the increases in traffic volumes estimated to be caused by the proposed project, and the percent of the peak-hour increase over the 1978 base level which would be caused by the project. Project-induced increases on the surrounding streets would range from less than 1% on Pine St. to 7% on California St. and 30% on Front St. The volumes shown are based on the inclusion of a 260-space parking facility in the project with ramps leading to and from Front St. If no parking facility were included in the proposed

building, the increase in project-related automobile trips on Front St., shown in Table 12, would be reduced to approximately 5%.

TABLE 12: PROJECTED 1981 VEHICLE VOLUMES ON STREETS NEAR
101 CALIFORNIA ST.

Street*	1981 BASE (veh.)			1981 BASE + PROJECT (veh.)			% of Increase Per Peak Hour Due to Project***
	24 Hour	Peak Hour**	Peak 8 Hour	24 Hour	Peak Hour**	Peak 8 Hour	
Front	5,100	410	2,900	5,700	535	3,300	30%
Davis	8,000	1,030	4,800	8,500	1,100	5,000	5%
California	8,500	650	4,700	8,800	690	4,800	7%
Pine	6,300	510	3,800	6,500	510	3,900	****
Market	9,000	720	5,300	9,200	750	5,400	4%
Beale	8,400	1,030	5,000	9,100	1,180	5,400	10%
Main	14,100	1,600	8,400	14,700	1,700	8,700	6%
Clay	30,800	2,410	17,300	31,300	2,990	17,600	3%
Washington	16,400	2,080	9,800	16,900	2,160	10,100	4%
Battery	15,500	1,500	9,000	16,000	1,500	9,300	****

*The section of each street is shown in Table 4, p. 42.

**The single peak hour during the peak period between 4:00 and 6:00 p.m., except for Washington and Main Sts. where the peak period is between 7:00 and 9:00 a.m.

***Percent increase over the 1981 base traffic volume

****Percent increase less than 1%.

The effect of the project on the capacity of adjacent intersections during the peak-hour in terms of volume-to-capacity ratios is shown in Table 13./2/ All of the intersections would operate at Level of Service C, except Market and Davis Sts. which would have a borderline Level of Service C/D; it should be noted that calculations are accurate only to within 10%. Vehicle speeds in the vicinity of the project would decrease, but would not be below 15 miles per hour (mph). The increase in the volume-capacity ratio at Front and California Sts. would not be as large as shown in Table 13 if no on-site project parking were provided. The potential for vehicle-pedestrian conflicts would increase, especially at the intersection of Market and Davis Sts. The increase in vehicular traffic on California St. which would result from the project would not disrupt cable car operations.

TABLE 13: PROJECTED 1981 PEAK-HOUR INTERSECTION VOLUME-TO-CAPACITY RATIOS*
NEAR 101 CALIFORNIA ST.

<u>Intersection</u>	<u>1981 Base</u>	<u>Critical Approach (Direction)</u>	<u>1981 Base + Project</u>	<u>Critical Approach (Direction)</u>
Front and California	0.45	Eastbound	0.50	Eastbound
Davis and California	0.62	Eastbound	0.67	Eastbound
Market and Davis	0.75	Southbound	0.79	Southbound
Mission and Beale	0.60	Eastbound	0.63	Eastbound

*Service volume capacities for these intersections are shown in Table 5, p. 42).

PARKING IMPACTS

The daily parking demand which would be generated by 101 California St. is estimated to be 1,160 parking spaces, assuming 1.4 persons per car./3/ The project would provide about 260 parking spaces, leaving a deficit of 900 project-related spaces. Parkers not finding space in the new building would be expected to use other facilities in the area as would the parkers currently using the existing 90-space garage on the project site.

Objective 1, Policy 7 of the Plan for Transportation (for full text of objectives and policies discussed, refer to the Revisions to the Transportation Element of the Master Plan Regarding Parking, City Planning Commission Resolution 7647, 20 January 1977) encourages such devices as staggered work hours to reduce "peaking of travel during such hours".

Objective 2, Policy 6 calls for the provision of "incentives for the use of transit, carpools and vanpools (to) reduce the need for new or expanded automobile parking facilities". Intel Corporation would institute "flextime" to allow employees to have staggered work hours and would preferentially allot on-site parking spaces to car- and van-pool vehicles (see Section V., p. 120). Objective 1, Policy 10 of the revised Downtown Transportation Plan states "Develop the Downtown Core as an automobile control area". Objective 1, Policy 3 calls for the provision of "needed additional short-term parking facilities in peripheral locations around but not within the Downtown Core".

Objective 1, Policy 4 states "Discourage the addition of new long-term parking spaces in and around Downtown, limit the amount of new spaces to that which cannot be reasonably accommodated by transit and locate long-term facilities in areas peripheral to the Downtown Commercial District". The project site is within the Downtown Core as mapped (Map A) in the revised Downtown Transportation Plan. The 260 parking spaces, including about 60 short-term spaces which would be provided would be expected to be used by project employees and visitors to the offices and retail and commercial establishments within the proposed project. According to responses to the questionnaire distributed to Intel employees, the elimination of parking facilities in the proposed project would not reduce the number of employees who would plan to drive to and from work.

TRANSIT IMPACTS

An assessment of the transit impacts of the project was conducted by adding the project-generated increases to the conditions expected to occur in late 1981 when the building would be completed. The 1981 base conditions were projected using growth factors for transit patronage based upon past system operating records. A separate growth factor was applied to each agency similar to the method used in the traffic analysis. Table 14 shows the 1981 base levels and the project-generated transit trip ends. The percent of total 1981 capacity used by the projected demands is also shown. Planned increases in capacity by Muni, BART and the Golden Gate Transit Ferry were considered (see Appendix I, p. 211). The project-generated increases would not statistically lessen the level of operation of the various transit agencies involved.

PEDESTRIAN IMPACTS

The 101 California Street Building population would increase the amount of p.m. peak hour pedestrian travel on the sidewalks surrounding the project site. The project would add 640 and 670 pedestrians per hour to the existing flows on Davis and Pine Sts. and 480 and 450 pedestrians per hour to the flows on Front and California Sts. These increases would nearly double the existing flows on these sidewalks. The sidewalks surrounding the project site would be wide enough to accommodate the increased flows, as shown by the unchanged

TABLE 14: 1981 PROJECTED TRANSIT CHARACTERISTICS OF 101 CALIFORNIA ST. -
P.M. PEAK HOUR OUTBOUND ONLY

Agency	1981 Base*		Base + Project		
	Ridership	% Occupancy**	Ridership	% Occupancy**	% Increase
Muni	16,580	62	17,290	65	4
BART					
Transbay	8,880	76	8,980	77	1
Westbay	6,890	69	6,960	70	1
A-C Transit	8,590	70	8,710	70	1
Sam Trans	740	76	780	80	5
SPRR	5,250	48	5,270	48	-
Golden Gate					
Motor Coach	5,240	81	5,300	82	1
Ferry	1,390	49	1,410	50	1
Harbor					
Carriers	400	58	410	58	1

*Base = Expanded from 1978 ridership.

**Percent of total capacity occupied.

levels of service in Table 15. The a.m. pedestrian volumes generated by the project would be comparable to the p.m. peak, although not as intense. Noon hour flows from the project would be lower than peak hour flows and would be more uniformly distributed over the 4 sidewalks surrounding the project site. The main impact of the increased pedestrian flows would be increased congestion at bus stops and crosswalks, particularly at the intersection of Davis and Pine Streets, where BART and Muni Metro patrons would be crossing Pine St. to the Embarcadero Station subway entrance. The additional space provided by the project plaza would relieve the increased loadings at Davis and California Sts. The site plan would result in shorter pedestrian distances by providing routes across the plaza and through the building.

If a direct BART entrance were provided on the site as a part of the project, approximately 250 project-generated pedestrians would use it during the peak hour, thus decreasing the project-generated flows on the crosswalks at Pine and Davis Sts.

TABLE 15: PEDESTRIAN IMPACTS OF 101 CALIFORNIA ST., P.M. PEAK 15-MINUTE PERIOD

Sidewalk	Volume*			Rate**	Level of Service***
	Existing	Projected Increase	Total		
Front	240	160	400	3.3	A
California	65	150	245	2.3	A
Davis	335	210	545	5.2	A
Pine	230	230	460	5.6	A

*Number of Pedestrians during a 15 minute period.

**Pedestrians per foot of sidewalk width per minute.

***Level of Service is measured at mid-block. For definition of Levels of Service, see Appendix G, p. 205.

INTERNAL ON-SITE CIRCULATION AND STREET ACCESS

The proposed on-site parking area entrance and exit would provide adequate capacity to allow vehicles access to and from the facility without disrupting vehicle traffic on Front St. There would be a potential for vehicle-pedestrian conflict on the sidewalk at the entrance. The internal circulation in the parking garage appears to be adequate to provide ready access to the parking spaces from the aisles; this would alleviate queuing.

Because there would be a single access point to the parking garage and 3 of the 4 streets surrounding the site are one-way, some traffic would be required to circulate clockwise from California St. to Davis St. to Pine St. to the garage entrance on Front St. resulting in additional vehicle miles of travel.

The off-street truck docks on Front St. appear to be adequate in depth and width to allow truck deliveries to be made to the building without causing disruption of street traffic or a blockage of the sidewalks while loading and unloading.

CUMULATIVE TRAFFIC IMPACTS

As Downtown San Francisco is currently experiencing an increase in office-building floor area, the Department of City Planning has initiated an analysis

of the cumulative traffic impact in the vicinity of the project. For a list of the 12 buildings, completed and approved since 1976 or now subject to environmental review, which are included in the analysis, and a description of the methodology refer to Appendix I, p. 208.

The four streets which serve as feeders to or from freeway ramps--Main, Beale, Clay and Washington Sts.--are the points of maximum automobile traffic concentration in the Financial District. They are assumed to determine the "worst case" or greatest traffic impacts. Impacts on other streets would be less as traffic would be more dispersed. The projected traffic volumes for 1981 are shown in Table 16. The percentage increase caused by 101 California St. above the cumulative traffic is estimated to be not more than 6% on any of the freeway approach streets; this is not a statistically significant change.

The cumulative impact on peak-hour street capacities is shown in Table 15, p. 94. Cumulative traffic would decrease the Level of Service on two of the 4 streets from C to D. It is assumed that there would be 1.3 persons per car. Although the volume-capacity ratio on some streets is higher than Level of Service C, other factors such as low speeds, pedestrian conflicts, and double parking reduce the service levels to "C" in the judgment of the transportation consultant. The impact of 101 California St. in relation to the cumulative impacts would be an imperceptible lessening of the level of traffic operation on the street system. As shown in Table 17, p. 97, the level of operation on Beale St. would be decreased a full Level of Service below the cumulative conditions from D to E. Vehicular speeds in the Financial District would be lessened, but none would be below 15 mph. The other streets would not drop a full Level of Service.

CUMULATIVE PARKING IMPACTS

The parking demand for each of the projects included in the cumulative analysis, as derived from the EIR's cited in Appendix I, p. 208, and the loss or gain of parking space since 1976 in the area bounded by Jackson, Montgomery, Second and Folsom Sts. and The Embarcadero, were compiled to produce the demand and deficit figures shown in Table 18, p. 98. It is estimated that the cumulative impact would produce a parking deficit of 5,700 spaces in 1981. Nine of the 12 projects analyzed would provide no off-street

TABLE 16: CUMULATIVE TRAFFIC IMPACTS IN 1981 (VEHICLE TRIPS)

Street	1981 Base*		1981 Base + A*		% Increase***		Base + A + B*		% Increase+	
	24-Hour	Peak Hour**	24 Hour	Peak Hour	24 Hour	Peak Hour	24 Hour	Peak Hour	24 Hour	Peak Hour
Main	14,300	1,600	16,900	2,700	18	65	17,500	2,800	2	4
Beale	8,400	1,100	11,000	2,300	31	110	11,600	2,400	6	4
Clay	30,300	2,400	31,500	2,900	4	21	32,100	3,000	2	3
Washington	16,200	2,000	17,500	2,500	8	22	18,100	2,600	3	3

*Base = Expanded 1976 vehicle volumes.

A = Vehicle volumes from projects considered in cumulative analysis.

B = Vehicle volumes from 101 California St..

**The Peak hour for Beale and Clay Sts. occurs during the peak period between 4:00 and 6:00 p.m.

The peak hour for Main and Washington Sts. occurs during the peak period between 7:00 and 9:00 a.m.

***Percent increase of 1981 + A over 1981 base. Percentage may not be directly derived from table due to rounding.

+Percent increase of 1981 + A + B over 1981 + A. Percentage may not be directly derived from table due to rounding.

TABLE 17: CUMULATIVE TRAFFIC IMPACTS - PROJECTED PEAK HOUR*
VOLUME-TO-CAPACITY RATIOS

<u>Street</u>	<u>1981 Base</u>	<u>1981 Base + A**</u>	<u>1981 Base + A + B***</u>
Main	0.49	0.81	0.84
Beale	0.57	0.89	0.95
Clay	0.60	0.75	0.75
Washington	0.52	0.65	0.66

*Peak hour for Beale and Clay Sts. is during the p.m. peak.

Peak hour for Main and Washington Sts. is during the a.m. peak.

**A = Cumulative project addition.

***B = 101 California St. addition.

TABLE 18: CUMULATIVE PARKING IMPACTS - PROJECTED OFF-STREET PARKING DEMAND
IN 1981

	<u>Cumulative</u>	<u>Cumulative Plus 101 California St.</u>
Available Spaces in 1976	1,000 spaces	1,000 spaces
Net gain (loss) of 1976 space	(153) spaces	17 spaces
Projected Parking Demand	6,550 spaces*	7,710 spaces
Net Parking Deficit	5,700 spaces	6,690 spaces

*Not counting that from growth other than the projects considered in the cumulative traffic analysis.

parking. It is estimated that 101 California St. would increase the parking deficit by approximately 17% over the cumulative condition; this is a statistically significant increase.

CUMULATIVE TRANSIT IMPACTS

An analysis was made, parallel to the cumulative parking and traffic analyses, of the cumulative transit impacts due to development in Downtown San Francisco (see Appendix I, p. 210). The transit analysis covered the peak 1-hour during the peak period for each agency. During the peak 1-hour period, the demand on individual routes varied from less than seated capacity to total capacity.

Analysis of the transit data allows a reasonable assumption that for short periods of time (15 to 30 minutes) certain routes experience loadings nearer to 100% of total capacity than the loadings shown in Table 19. The loadings shown are the results of summing ridership of full vehicles with partially empty vehicles, thus equalizing the loads over the one-hour period. As the cumulative demand increases, the length of time of peak loadings will increase, thus forcing a spreading of peak-of-the-peak conditions over time. It is not possible to quantify the extent to which peak-of-the-peak conditions would be increased because the bunching on transit vehicles varies from day to day.

The routes most likely to be overloaded for short periods are the Muni lines, the Golden Gate Transit motor coaches and BART transbay trains.

The only agency projected to operate at greater than 90% of total capacity during the 1-hour peak period is SamTrans. The disproportionate overrun of the SamTrans capacity is due to the newness of the service, resulting in a lack of historical growth data which could be used for accurate growth projections.

NOTES - Transportation, Circulation and Parking

/1/ The literature reviewed included: California Department of Transportation (CALTRANS), District 04, 1966-1976, Trip End Generation Research Counts Progress Reports, Repts. 1-11, Institute of Transportation Engineers (ITE), 1976, Trip Generation, ITE Informational Report; National Cooperative Highway Research Program (NCHRP), 1969, Urban Travel Patterns for Hospitals, Universities, Office Buildings, and Capitols, Rept. No. 62; NCHRP, 1971, Projection of Highway Utility, Trip Generation Vocabulary, Rept. No. 121; TJKM, 1974, City of Sausalito Comprehensive Traffic Study.

/2/ The intersection analysis was conducted on two levels. The first considered traffic generated only by the project's parking garage at intersections on California St. The second considered all project-generated traffic at the freeway ramps, specifically at the intersection of Beale and Mission Sts. The analysis was structured this way to account for the dispersions of project-generated traffic to parking sites throughout the downtown area.

/3/ The parking demand was calculated by using the following equation:

$$\text{Parking demand} = (\text{Vehicle trip ends} / 2 \text{ trip ends/round trip}) \times (\text{Daytime proportion} * \text{turnover rate}^{**})$$

TABLE 19: 1981 PROJECTED CUMULATIVE TRANSIT CHARACTERISTICS - P.M. PEAK OUTBOUND ONLY

Agency	1981 Base*		1981 Base +A*		1981 Base +A+B*	
	Ridership	% Occupancy**	Ridership	% Occupancy**	Ridership	% Occupancy**
MUNI	15,950	60	21,530	80	22,060	83
BART	7,750	66	9,320	80	9,420	81
	6,020	61	6,990	70	7,060	71
A-C Transit	8,590	70	9,470	77	9,590	78
SamTrans++	630	64	1,750	180	1,790	184
SPRR	4,460	41	4,940	45	4,960	45
Golden Gate						
Motor Coach	4,580	71	5,230	81	5,280	81
Ferry	1,220	43	1,390	49	1,400	50
Harbor Carriers	352	50	367	52	373	53

*Base = Expanded from 1978 ridership.

A = Cumulative ridership.

B = 101 California St. ridership.

**Percent of total capacity occupied.

***Percent increase in ridership of 1981 Base + A over 1981 Base.

+Percent increase in ridership of 1981 Base + A + B over 1981 Base + A.

++See Traffic Note 4.

*the daytime proportion = 75% for office, 50% for retail.

**the turnover rate (uses of each space per day) = 1.5 for office, 5 for retail.

/4/ The SamTrans service to downtown San Francisco was initiated in July of 1977 and as such does not lend itself to any type of refined growth projections. The mainline routes to downtown San Francisco were grouped by SamTrans with a block of routes for projection purposes; hence, the overall projections for the group of routes do not exactly reflect the ridership changes on a single route. The method of increasing the capacity of the transit systems for the 1981 analysis made in this EIR considered only definite capacity increases (i.e., well documented). SamTrans is currently operating at approximately 60% of total capacity on the mainline routes, clearly covering the demand. The analysis of the 1981 Base + A occupancy added all of the cumulative transit trips in a lump sum which had the effect of tripling the existing ridership and creating an apparent, artificial capacity shortage. As the cumulative projects would be spread over time, the increases in demand would be gradual and SamTrans would be expected to increase capacity to meet increased demand on a gradual basis. (F. Dock, Traffic Engineer, TJKM, letter communication, 8 December 1978.)

G. AIR QUALITY

Two types of air quality impacts would result from the proposed project: short-term construction impacts, including particulate and hydrocarbon emissions, and long-term vehicle-related impacts, including carbon monoxide (CO) emissions.

Demolition, grading and construction activities would affect local air quality for approximately 2-1/2 years. Construction activities would generate approximately 1.2 tons of particulate (dust) per acre per month of activity./1/ This would include emissions from demolition, excavation and earthmoving, traffic on unpaved surfaces, wind erosion, and construction of the building itself. Assuming 5 months of demolition and excavation on the 1.7-acre site, a total of approximately 10 tons of particulates would be generated. Without mitigation this would result in average 24-hour concentrations of approximately 5,500 micrograms per cubic meter (ug/m3) at and adjacent to the site. This would be 55 times the State 24-hour standard of 100 ug/m3.

The possible use of oil-based paints for the interiors would generate hydrocarbon emissions. This type of emission is controlled by Regulation 9 of

the Bay Area Air Quality Management District (BAAQMD)./2/ Diesel-powered construction equipment would emit (in decreasing order by weight) nitrogen oxides, CO, sulfur oxides, hydrocarbons, and particulates./3/ The amounts of these pollutants generated, combined with background levels, would increase local concentrations, but would probably not result in a greater frequency of violations of air quality standards.

Automobiles would be used for 48% of the person trips generated by the facility. Most of the affected streets would experience a traffic increase of less than 10%. Roadside CO levels would be increased in the immediate vicinity of the site by the computed addition of 600 vehicles per day to Front St. This is the largest percentage and volume traffic increase due to the project. CO concentrations on Front St. would be approximately 6.4 parts per million (ppm) and 2.4 ppm during the peak-hour and peak 8-hours, respectively, with the project; and 5.7 ppm and 2.3 ppm, respectively, without the project in 1981. Current (1978) concentrations are estimated to be approximately 6.5 ppm and 2.5 ppm, respectively./4/ The Federal CO standards are 35 ppm for one hour and 9 ppm for eight hours.

Clay St. between Front and Davis Sts. does have in 1978, and is expected to have in 1981, the highest traffic volumes and would have the highest CO levels in the area. 1978 concentrations are estimated to be 21.6 ppm and 6.3 ppm during the peak-hour and peak 8-hours, respectively. In 1981, they would be approximately 16.8 ppm and 5.2 ppm, respectively, without the project, and 20.1 ppm and 5.3 ppm, respectively, with project-generated traffic. The latter two concentrations are 57% and 59% of the federal 1-hour and 8-hour standards, respectively./4/

The building would also generate pollutants from the combustion of natural gas for heating and hot water. Table 20 compares project-generated traffic and building operation emissions to total emissions in the nine-county Bay Area.

CUMULATIVE AIR QUALITY IMPACT

The cumulative effects of recently proposed major construction on CO in the Downtown area (see Appendix I, p. 208, for discussion of buildings analyzed) was determined by using the Bay Area Air Quality Management District's Air

TABLE 20: DAILY PROJECT-GENERATED EMISSIONS (TONS/DAY)

	Fuel Combustion Emissions*	Automobile Emissions**	Total Project Emissions	Estimated Regional Emissions***	
				1985	2000
Carbon Monoxide	0.0001	2.193	2.193	4,010	5,660
Hydrocarbons	0.00001	0.231	0.231	800	1,060
Nitrogen Oxides	0.0005	0.225	0.225	690	720

*This category includes emissions from heating and hot water and other building operations. U.S. EPA, 1977, Compilation of Air Pollutant Emission Factors, Third Edition, p.1.4-1---1.4-3. Research Triangle Park, N.C.

**U.S. EPA, 1978, Supplement 8 Emission Factors, Research Triangle Park, N.C.

***Association of Bay Area Governments (ABAG), 1977, Air Quality Maintenance Plan Brief No. 3, Berkeley, CA.

Quality Impact Guidelines./4/ The results of the analysis are shown in Table 21. Each of the predicted concentrations is less than 70% of the standard.

TABLE 21: ROADSIDE CARBON MONOXIDE CONCENTRATIONS - PARTS PER MILLION (PPM)

Streets	1978	1981 Without Projects Analyzed	1981 Plus Other Projects	1981 Plus Other Projects and 101 California
Clay (between Front and Davis)				
Peak 1-hour (Standard 35 ppm)	21.6	16.8	19.4	19.8
Peak 8-hour (Standard 9 ppm)	6.3	5.2	5.3	5.4
Beale (between Market and Mission)				
Peak 1-hour (Standard 35 ppm)	11.2	9.1	16.1	16.6
Peak 8-hour (Standard 9 ppm)	3.0	2.7	3.0	3.0

CO concentrations in 1981 on Clay St., including the project and other major construction, would be 9% less than in 1978 during the more restrictive 8-hour averaging time. The reductions in CO concentrations would be due to emission controls mandated on vehicles by the state and federal governments, assuming the mandated controls do not change. 8-hour CO concentrations on Beale St. in 1981 would be similar to those in 1978, because the effect of the new buildings proposed and under construction on traffic patterns would offset emission controls. A large number of the new buildings are or would be built along Market St. or south of Market St.; these new buildings would increase traffic volumes, and therefore affect air quality more on Beale St. than on Clay St.

In summary, cumulative downtown development would add to local and regional accumulations of CO, hydrocarbons and nitrogen oxides (the latter two being precursors of ozone), particulates, and sulfur oxides during adverse meteorological conditions such as inversions. The recently adopted regional Air Quality Maintenance Plan/5/ found that ozone would continue to be a regional problem in the future, and that substantial reductions in hydrocarbon emissions would be necessary to attain and maintain the ozone standard in the Bay Area. CO and particulates are also problems on a local scale. Because the development would increase emissions of hydrocarbons, CO, and particulates, attainment of the standards would be impeded.

NOTES - Air Quality

/1/ U.S. Environmental Protection Agency (U.S. EPA), 1975, Compilation of Air Pollutant Emission Factors, Supplement #5, p. 11.2.4-1.

/2/ Bay Area Air Quality Management District, Regulation 9, Rule for Architectural Coatings, adopted 1 March 1978.

/3/ U.S. EPA, 1975, Compilation of Air Pollutant Emission Factors, Supplement #4, p. 3.2.7-2,-3.

/4/ Carbon monoxide calculations were made for the worst-case poor dispersion conditions according to the BAAQMD Guidelines for Air Quality Impact Analysis of Projects, 1975, updated for EPA Supplement 8 emission factors, 1978. Background concentrations assumed to be 3.4 ppm (1-hour) and 1.7 ppm (8-hour) per SPUR, 1974, Impact of Intensive High Rise Development on San Francisco, Detailed Findings, San Francisco.

/5/ Association of Bay Area Governments, BAAQMD, and Metropolitan Transportation Commission, January 1979, 1979 Bay Area Air Quality Plan, San Francisco Bay Area Environmental Management Plan.

H. NOISE

The potential noise impacts associated with this project are of three types:

- 1) impact of the existing noise environment on the proposed use of the site;
- 2) impact of noise generated by the use of the site on adjacent development;
- 3) impact of construction noise on adjacent development.

A complete discussion of fundamental acoustical concepts and the noise study on the proposed project are available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319.

COMPATIBILITY WITH EXISTING NOISE LEVELS

The City of San Francisco has adopted guidelines for determining the compatibility of various land uses with different noise environments (City Planning Commission Resolution No. 7244, 19 September 1974, p. 17). For office use the guidelines require no special noise control measures in a noise environment of up to an Ldn of 75 dBA. The existing Ldn levels at the site are 65 to 70 dBA. As the building would be climate-controlled and would have dual-pane fixed windows, expected interior Ldn noise levels of 30 to 40 dBA would be 30 to 35 dBA below the outside noise level. An interior noise level of 30 to 40 dBA would be produced by machinery and office activities within an office building. Noise from individual trucks and buses passing the site would exceed the interior background noise level by 5 dBA. Persons on the project plaza would be subject to traffic noise from California and Davis Sts. The areas immediately behind the landscaping planters would be partially shielded.

NOISE IMPACTS ASSOCIATED WITH THE PROPOSED USE

After the structure is built and occupied, local noise levels could change in two ways: noise due to increased traffic generated by the project and mechanical equipment noise.

The amount of traffic generated by 101 California St. during any hour of the day would cause traffic noise levels to increase by 1 dBA or less. A 1-dBA increase in environmental noise is undetectable by the human ear. No noise impact associated with increased traffic would therefore be expected.

The mechanical equipment to be used in the structure has not yet been chosen. Historically, mechanical equipment in buildings has increased environmental noise levels in downtown San Francisco. Mechanical equipment noise is regulated by the San Francisco Noise Ordinance, Section 2909, "Fixed Source Noise Levels" (San Francisco Municipal Code, Part II, Chapter VIII, Section 1, Article 29, 1972). The project site and surrounding area are zoned C-3-0. In the C-3-0 zone, the ordinance limits equipment noise levels to 70 dBA between 7 a.m. and 10 p.m. and 60 dBA between the hours of 10 p.m. and 7 a.m. at the receiver's property line. During lulls in the traffic, mechanical equipment generating 70 dBA would control the site noise environment. If equipment noise were to be limited to 60 dBA to meet the nighttime limit, it would be inaudible.

CONSTRUCTION NOISE IMPACT

Piledriving would last about 10 weeks. An impact-type piledriver would be used. Cranes, impact wrenches, and diesel engines would operate at the construction site (refer to Children's Hospital of San Francisco, DEIR, 1979, p. 83 for typical demolition and construction noise levels). During construction of 101 California St., all powered equipment, other than impact tools, would have to meet the San Francisco Noise Ordinance requirement of 80 dBA at 100 feet. Meeting this limit would insure that these pieces of equipment would cause noise levels at the nearest office building to be no greater than present maximum noise levels due to traffic noise.

Noise impacts would result during the driving of the foundation piles of the building. Unmuffled and unshielded drivers emit noise levels of up to 105 dBA, at a distance of 50 ft., each time the driver strikes the pile. Pile driving would be audible to people on the streets, where not shielded by intervening buildings, between 500 to 1,000 ft. from the project site. Open windows are required for ventilation in the PG&E building on Market St. and in the buildings across Pine St. from the project site. Noise levels in these buildings would reach from 65 to 70 and from 80 to 85 dBA, respectively. Noise levels this high would require that the office workers shout to communicate and would be expected to distract employees to a degree that would degrade their performance. Vibrations resulting from piledriving would also cause employee discomfort. In those buildings with fixed windows facing the

project site the piledriver noise would be 60 to 65 dBA. At this level the piledriver noise would interfere with normal speech at distances beyond 3 ft. and would be annoying and distracting.

The City of San Francisco has developed methods to reduce or eliminate pile-driver noise impact. Under the Noise Ordinance, the Director of Public Works has the authority to require that piledrivers be equipped with "state-of-the-art" noise control devices. According to J. Ross, Jr. of the Department of Public Works, this has been interpreted in the past to mean meeting a noise emission limit of 85 dBA at 50 ft. (telephone communication, 20 June 1978). If this limit were met, noise levels in the nearest office building would be 60 to 65 dBA, a level at which office workers would be annoyed and distracted to some extent. Noise levels inside the closest rooms at the Hyatt Regency Hotel would be 43 dBA.

After the piles are driven, under worst-case conditions such as when a concrete pumper and concrete mixing truck are parked on the street adjacent to the site, the L50 would be about 86 dBA outside buildings across the street from the construction site. These construction activities would result in about a 16-dBA increase in the L50 along California and Davis Sts. and approximately an 18-dBA increase in the L50 across Pine St. from the site. Inside the building across Pine St. the L50 due to construction noise would be 65 to 70 dBA. A loud voice effort would be required to communicate at distances from 3 to 4 ft. On sidewalks opposite the project site, someone talking would have to shout to be understood at a distance of 2 ft. The increase in background noise level caused by the construction project, coupled with the speech interference effect expected, would probably provoke complaints from office workers.

Trucking of construction materials to and from the site would not cause a noticeable increase in noise levels along Davis and Beale St. to the Bay Bridge and James Lick Freeway route, because of existing traffic on those streets.

I. ENERGY

Pacific Gas and Electric Company (PG&E) could provide natural gas to the proposed project through its existing and available delivery systems. The company anticipates no difficulty in providing the project with complete electrical service./1/ Traffic on California St. would be affected for approximately 1 week during laying of required electrical cables to the site./2/

The project would require an unknown amount of energy for demolition of the existing structures, excavation, and the removal of the excavated materials and rubble to a disposal site. During construction, it is estimated that about 200,000 gallons of vehicle fuel, about 34 billion British Thermal Units (BTU) - at source,/3/ and about 1.65 million kilowatt hours of electricity (about 17 billion BTU - at source) would be used. Additionally, an unknown amount of energy would be necessary to fabricate the materials used in the structure and to transport materials and workers to and from the site.

The proposed structure would be designed to use approximately 8% less energy than would be allowed by the State Energy Commission standards for new, nonresidential structures. This would be accomplished using a variety of energy-conserving techniques, such as dual pane glass; parabolic louver-type lighting fixtures; multiple zone bypass heating, ventilation and air conditioning system; and a computer control system designed to be variously responsive to the energy demands in different parts of the structure and to shed nonvital electrical functions (such as water coolers, accent lighting and total shut down of building ventilation motors) during peak energy demand periods. This is about the same amount of electricity as is used by 5,100 average residential customers in San Francisco.

During operation, the project would require about 17 million kilowatt hours of electricity per year (170 billion BTU - at source), used primarily for ventilation and cooling. This would be an average monthly consumption of about 1.4 million kilowatt hours, or about 1.2 kilowatt hours per sq. ft. per month. For comparison, new highrises at 333, 444 and 595 Market St., San Francisco, would use an average of about 1.4, 1.8 and 2.5 kilowatt hours per sq. ft. per month, respectively. Daily and annual electric demand curves are

shown in Figure 30. The annual electric demand curve is approximately level because the demand for ventilation, elevators, and office equipment does not vary a great deal from month to month. Peak consumption would occur on August afternoons due to cooling and ventilation needs, coinciding with Pacific Gas and Electric Company's (PG&E) system-wide peak demand period.

The project would require about 0.8 million cu. ft. of natural gas per year (0.89 billion BTU - at source), used primarily for heating. This would be about 2.1 BTUs per sq. ft. per day. For comparison, 333, 444 and 595 Market St. would use an estimated 137, 120 and 300 BTUs of natural gas per sq. ft. per day respectively. The estimated use by the proposed project is less due to the energy conserving building design and heating system. This use by the project is about the same amount of natural gas as is used annually by 7,600 average residential customers in San Francisco. Daily and annual natural gas demand curves for 101 California St. are shown in Figure 31, p. 110. Peak consumption of 2.8 million BTUs would occur at 8 a.m. on Saturday mornings in December because the building would have to be heated for the few employees who might be working on Saturday, but the supplementary heat contributed on weekdays by lighting and the presence of a large number of employees would not be available. The peak demand for natural gas would not coincide with the PG&E system-wide peak demand which occurs in the early evening hours in January.

It is estimated that vehicle fuel use for traffic generated by the project would be 410,000 gallons of gasoline per year (about 100 billion BTU - at source). This use was estimated based upon the mix of vehicles expected in 1985. Actual vehicle fuel use is expected to decline until 1995 as the vehicle fleet becomes more efficient.

Cumulative Downtown development, including the proposed project, would use approximately 23.2 million kilowatt hours per month and approximately 2,500 BTUs of natural gas per sq. ft. per day.

NOTES - Energy

/1/ R. Fohlen, Industrial Power Engineer, Pacific Gas and Electric Company, letter communication, 7 September 1978. This letter is available at the Department of City Planning, Office of Environmental Review.

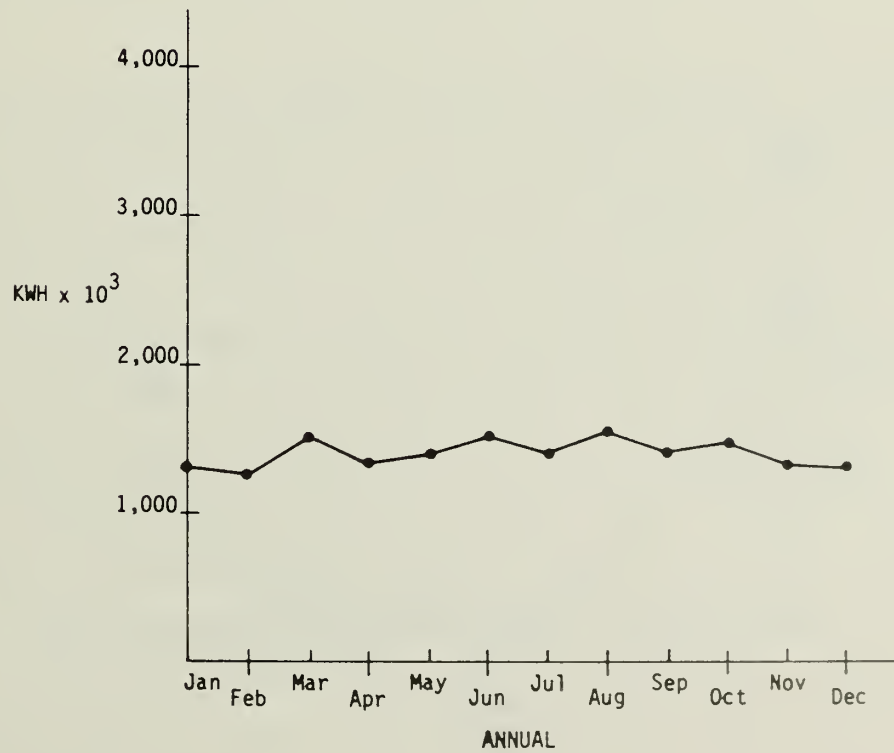
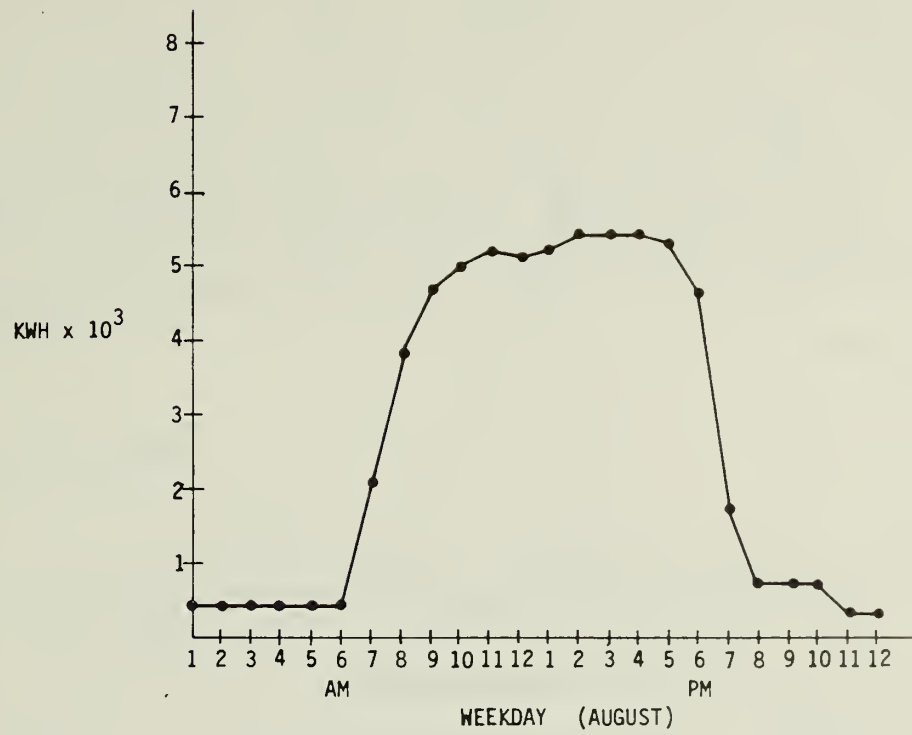


FIGURE 30 ELECTRIC POWER CONSUMPTION PROFILES

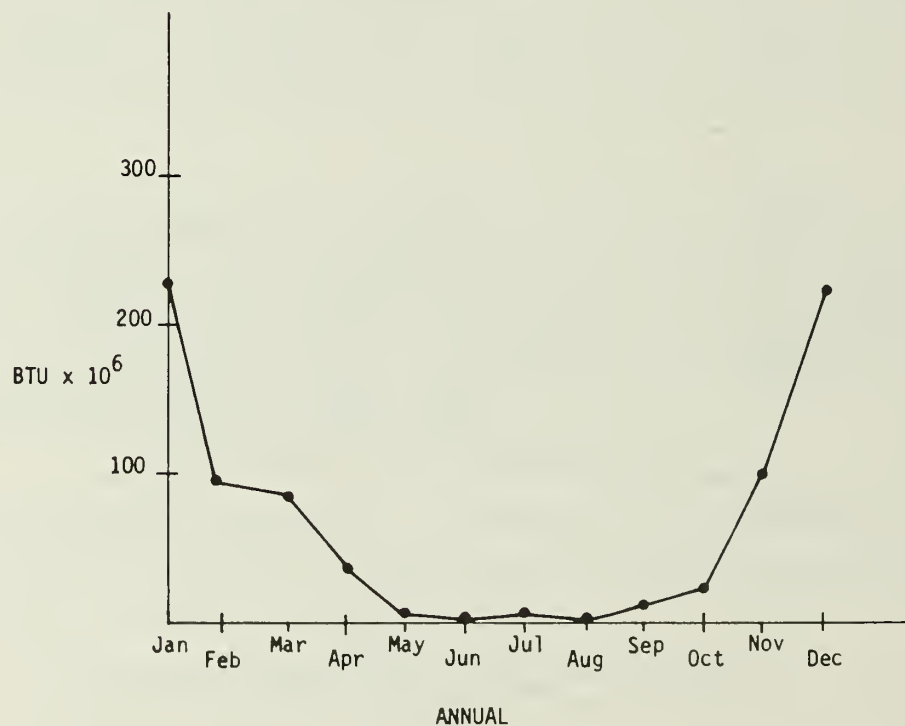
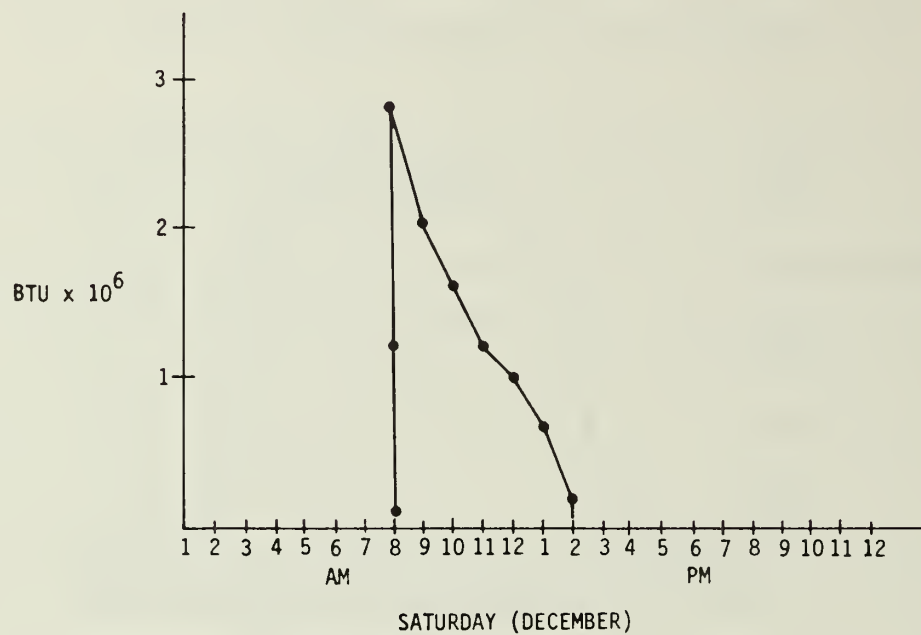


FIGURE 31 NATURAL GAS CONSUMPTION PROFILES

/2/ R. Fohlen, Industrial Power Engineer, Pacific Gas and Electric Company, telephone communication, 4 October 1978.

/3/ The "British Thermal Unit" (BTU) is a standard for measuring heat. Technically, it is the quantity of heat required to raise the temperature of one pound of water 1 degree F. (251.98 calories) at Sea Level. The term 'at source' means that adjustments have been made in the calculation of the BTU energy equivalent to account for losses in energy which would occur during generation and transmission of the various energy forms as specified in; ERCDC, 1977 Energy Conservation Design Manual for New Nonresidential Buildings, Energy Conservation and Development Commission, Sacramento, CA; and Batham, M.D., D.J. Ames, R.D. Smith, and E.C. Shirley, 1976, An Interim Procedure to Evaluate Transportation Energy, CA-DOT-7082-76 (Tables 1 and 5), CALTRANS, Sacramento, CA.

J. GEOLOGY AND HYDROLOGY

The entire site would be excavated to an average depth of 23 ft. to remove the artificial fill and some of the soft Bay mud. According to P. Gilbert from Turner Construction Company (letter communication, 18 October 1978), approximately 65,000 cu. yds. of earth would be removed and transported to an undetermined disposal site near the San Francisco Airport or Redwood Shores in Redwood City.

Mr. Gilbert has estimated that dewatering would be conducted in the excavation for 8 months and that the rate of flow would be about 100 gallons per minute for a total of 35 million gallons of water during the dewatering period (letter communication, 9 October 1978). All water would be discharged into the storm drain system. The dewatering might produce some local subsidence in compressible geological materials such as artificial fill and soft Bay mud. Settlement of these materials might damage older brick and masonry buildings in the immediate vicinity of the site. The walls of such structures might crack or lean out of plumb and floors might be bent or tilted out of horizontal. Streets and sidewalks could develop swales, cracks or "potholes", thereby creating a potential traffic hazard. Underground utility lines, e.g. sewers, water, power and telephone lines, might be bent or broken by the settlement or lateral shifting of soil caused by dewatering. Because of the potentially high costs of repairs associated with such damages, the Department of Public Works generally requires that a Surety Bond be posted before issuance of permission for excavation. The construction contractor would be held responsible for any damage which might result from dewatering.

The lowering of the water table during construction is not expected to have a permanent impact on the ground water levels. Some temporary saltwater intrusion might occur during dewatering, but most of the draw-down of the water table would occur within about 500 ft. of the site and would decrease rapidly with distance. In addition, the Bay mud is clayey and relatively impermeable and the sea wall restricts the intrusion of saltwater into the geologic materials of the land.

Seepage might be a problem in the underground garages of the building. A sub-drainage system would be constructed below the slab to relieve water pressure.

A possible hazard from lateral movement of geologic materials, particularly the Bay mud, could occur during excavation of the site. Such movement could occur because of the exposure of a free face in the pit wall. The weight of the overlying earth materials and buildings could exert a pressure upon the muds which could initiate a movement into the pit. The mud, in effect, could be squeezed out into the excavation pit. Such lateral movement could occur at any time, but the hazard would be greatest if the soil were saturated with groundwater or if an earthquake were to occur.

The foundation of the building would be designed to carry the load into firm bearing materials below the soft Bay mud. The sandy materials which would bear the load are relatively incompressible, so that only minor settlement is expected to occur. According to J. Colaco, the President of Gillum-Collaco Engineers, Inc. (telephone communication, 18 October 1978), the foundation design would take this factor into consideration.

The removal of spoils from the site could cause the spillage of silt and sand in the streets along the haul routes. Such street dirt would be a safety hazard for operators of vehicles, particularly motorcyclists and bicyclists. The street dirt would be a source of siltation in the storm drains and a source of dust.

K. SEISMICITY

Ground shaking during an earthquake might damage the proposed building, but probably would not cause its collapse. According to Dr. J. Colaco, the President of Gillum-Colaco Engineers, Inc. (telephone communication, 18 October 1978), the building would be designed to meet the standards of the San Francisco Building Code which require that buildings withstand horizontal loads statically, and the more stringent standards of the seismic design code of the Structural Engineers Association of California (SEAOC). The SEAOC design standards relate the structural design to the maximum probable earthquake on the nearest fault and on a more distant fault, and to the maximum probable earthquake in the region (an 8.3 Richter magnitude event on the San Andreas Fault). The building would be designed on the basis of dynamic analyses related to projected movements potentially created by earthquakes including the maximum probable earthquake. A design based on a dynamic analysis would greatly reduce the likelihood of structural collapse. The design approach would be to minimize damage in the fifty-year earthquake and to "mitigate collapse" under the maximum probable earthquake (B. Kacyra, Earthquake Engineering Systems, Inc., letter communication, 26 October 1978).

Dr. Colaco (telephone communication, 18 October 1978), stated that the structure would have a pile foundation which would support grade beams. The piles would be driven into the stable dense sands below the soft Bay mud. The building would be all steel, having a ductile, moment-resistant steel frame. Because the building would have an elastic design, the top of the building would have a maximum sway of an estimated 24 inches in a major earthquake (Dr. J. Colaco, telephone communication, 4 April 1979). The SEAOC recommendation for maximum allowable building sway for a structure of this height and type is 3 feet.

The swaying motions of the tower during an earthquake might damage the glass and natural stone exterior, possibly causing some panels to break or fall onto the sidewalks and streets. The likelihood of glass and stone panels falling during an earthquake would be greatly reduced because the building design would conform to the SEAOC standards, although the hazard could not be eliminated entirely.

The vibratory movements caused by an earthquake might damage the glass-enclosed main entrance lobby. A steel space-frame would support the glass panels. The frame probably would not collapse during an earthquake but its movements might cause some glass panels to break or fall. A dynamic analysis would be made for the space frame by structural engineers./6/ Additional damage might result from the movement of the space frame against the building during earthquake vibrations or from debris falling onto the glass lobby ceiling from the facade of the tower.

Ground shaking during an earthquake could cause loose panel walls to fall down, and unattached objects, such as bookcases, to topple. Fires could be ignited within the building. If liquefaction and lateral landsliding were to occur in the vicinity, local streets might buckle or crack due to lateral landsliding, accompanying liquefaction, or rapid settlement. Water mains and pipes and underground utility lines might break, leaving the building without outside water, power or telephone communication. Elevators could be made inoperable due to loss of power or damage to the elevator system. Emergency water storage and a power generator would be incorporated into the building as required by City code.

L. GROWTH INDUCEMENT

The project would add about 1,264,000 gross sq. ft. of office space (including 30,900 sq. ft. of commercial/office space) to the Downtown supply, while about 192,000 gross sq. ft. of commercial space in the present buildings on Assessor's Block 263 would be demolished. The anchor tenant, ITEL Corporation, is already located in San Francisco and would vacate up to 370,000 leasable sq. ft. of space, mainly in One and Two Embarcadero Center. This space would then become available for other office tenants, as would space vacated by other San Francisco firms moving into the project. It is not known to what extent additional office space in San Francisco would be vacated as occupancy of 101 California St. would take place. Development of the project would not be expected to have a long-term effect on population growth in the City. The addition to the supply of office space could cause some firms to relocate to San Francisco, but the expected net population increase would be less than 0.1%. The project would contribute incrementally to a

demand for transit and parking facilities to serve downtown commuters, since almost all of the employees would be expected to drive or use transit to get to work (see Table 11, p.89).

The project would follow the trend of replacing older buildings on and near lower Market St. with new construction. The project would not stimulate further development near the site. Development has already taken place in the area or is in the planning stage.

Cumulatively, the project could contribute incrementally to an oversupply of downtown office space in the 1980's. An oversupply could have the effect of inhibiting office growth in the other areas of the City, particularly the northern waterfront or South of Market St.

V. MITIGATION MEASURES PROPOSED TO MINIMIZE THE SIGNIFICANT EFFECTS OF THE PROJECT

In the processes of project planning, design and coordination, a number of measures have been identified that would reduce or eliminate the potential adverse environmental effects of the proposed project. Most of these measures have been or will be adopted by the project sponsors or their architects, builders, or other contractors. A few measures are under consideration and some have been rejected. Each of these measures, and its status with respect to the proposed project, is discussed below. Where a measure has been rejected, the reasons for its rejection are also shown (See Table 22).

TABLE 22: MITIGATION MEASURES PROPOSED TO MINIMIZE THE ADVERSE EFFECTS OF THE PROJECT

MEASURES TO BE INCLUDED
IN PROJECT

URBAN DESIGN AND VISUAL IMPACTS

- The project would include two landscaping planters planted with vines and seasonal flowers that would be changed at least four times per year. This would enhance the visual amenity of the plaza in conformity with the Comprehensive Plan.

- Pedestrian seating along the edges of the planters would be provided to enhance the street level pedestrian amenity of the project.

- The seven-story base structure would help provide a visual transition in scale from comparably sized neighboring structures to the tower. Natural stone and an arcade-like window treatment would also relate the project to nearby structures.

- The seven-story base structure would have a varied window treatment and recessed street level windows to provide surface articulation to complement patterns of other nearby buildings. This would help to reduce the apparent size of the structure and promote human scale at pedestrian levels.

- Pedestrian traffic would be separated insofar as possible from vehicular traffic. Pedestrian walkways would pass through the interior of the block across the plaza, and the main lobby would connect Davis St. with Pine St. Walking distance would also be shortened through the smaller open lobby at the corner of Front and California Streets.

- The project would provide retail frontages at street level to encourage pedestrian activity, interest and movement.

- The design of signs and graphics would be controlled to avoid a garish or distracting appearance.

MEASURES RECOMMENDED
AND/OR UNDER CONSIDERATION

MEASURES REJECTED
(AND REASONS FOR REJECTION)

- The project site plan could be oriented so as to place the plaza to the south of the tower. This would enhance spatial continuity with Lower Market St. and the Mutual Benefit Life plaza, and reduce midday shadows on the plaza cast both by the project tower and by the Mutual Benefit Life building. The project architect chose the proposed configuration "to reinforce the quasi-plaza formed by California and Davis," because each of the other three corners have buildings that are set back from both California and Davis Sts. (See also VII.C., p.).

TABLE 22 (Continued): MITIGATION MEASURES PROPOSED TO MINIMIZE THE ADVERSE EFFECTS OF THE PROJECT

MEASURES TO BE INCLUDED
IN PROJECT

CULTURAL AND HISTORIC IMPACTS

Should evidence of cultural or historic artifacts of significance be uncovered at the site during construction, the contractor would halt construction for up to 4 weeks until a qualified archaeologist or historian could determine the significance of the evidence and recommend appropriate measures.

WIND IMPACTS

- The project would have two landscaping planters, on California St. and Davis St. Wind studies on previous designs showed that no planters or taller planters would result in increased winds at the intersection of California and Davis Sts. and at the Mutual Benefit Life plaza.

- Street trees would be placed along the Davis St. sidewalk near the southeastern entrance to the building to reduce windspeeds near the tower and turbulence at the entrance.

- The cylindrical shape of the tower would partially mitigate wind effects in the Mutual Benefit Life plaza which would result were a conventional square tower to be erected on the project site.

SECURITY IMPACTS

- An information and alarm monitoring station would be located in the main lobby. This station would be staffed by a security force 24 hours a day, year round.

MEASURES RECOMMENDED
AND/OR UNDER CONSIDERATION

MEASURES REJECTED
(AND REASONS FOR REJECTION)

- A low-rise building at the corner of California and Davis Sts. could reduce wind effects on the Mutual Benefit Life plaza. This was rejected in favor of the pedestrian amenities afforded by the proposed plaza. The landscaping planters partially mitigate the wind effects of the proposed plaza on the Mutual Benefit Life plaza.

TABLE 22 (Continued): MITIGATION MEASURES PROPOSED TO MINIMIZE THE ADVERSE EFFECTS OF THE PROJECT

MEASURES TO BE INCLUDED IN PROJECT	MEASURES RECOMMENDED AND/OR UNDER CONSIDERATION	MEASURES REJECTED (AND REASONS FOR REJECTION)
<ul style="list-style-type: none"> - Closed-circuit television cameras would survey the entrances and exits of the main office tower, the lobbies, all outside doors, garage elevators to the main building, all stairwell exits on levels 1 and 2, the entrances and exits to the parking garage, each garage floor, loading and receiving areas, and the plaza. 		
<ul style="list-style-type: none"> - After-hours access would be available through an electronic card access system. 		
<ul style="list-style-type: none"> - A security guard would periodically patrol the parking garages to discourage auto-related crimes. 		
<ul style="list-style-type: none"> - The project sponsor would meet with the Crime Prevention Bureau of the Police Department to discuss further security measures. 		
FIRE		
<ul style="list-style-type: none"> - The project design would incorporate fire protection measures required by the San Francisco Building Code. These would include a fire alarm system and an alarm monitoring station which would be equipped to indicate the time and location of a fire, to switch on emergency power sources, and control the elevators. Other requirements would be an automatic fire detection system, a voice communications system, ventilation for smoke control, a standby power generator, an on-site water supply, and a sprinkler system on every floor. 		
<ul style="list-style-type: none"> - The project sponsor would meet with the Fire Marshal to discuss the building design and proposed internal fire protection measures. 		

TABLE 22 (Continued): MITIGATION MEASURES PROPOSED TO MINIMIZE THE ADVERSE EFFECTS OF THE PROJECT

MEASURES TO BE INCLUDED
IN PROJECT

MEASURES RECOMMENDED
AND/OR UNDER CONSIDERATION

MEASURES REJECTED
(AND REASONS FOR REJECTION)

WATER

- Low-flow plumbing fixtures would be used to conserve water.
- The cooling tower systems would conserve water by recycling the water in the condenser lines 5 to 6 times.

SOLID WASTE

- A trash compactor would be used to help reduce the need for landfill space.

TRANSPORTATION, CIRCULATION AND PARKING

- Pacific Gas and Electric Company would coordinate work schedules with other utilities requiring trenching so that street disruption would take place during weekends and off-peak hours.
- Eastbound trucks entering the site during construction would queue on Front St. rather than California St., so that eastbound traffic on California St. would not be forced to use the cable car lane.
- The proximity of the project site to the Embarcadero Station of the Market St. subway would induce the use of BART and Muni transit lines served by the subway. A shift in mode from private automobiles to public transit would mitigate the cumulative parking deficit and would also reduce the levels of street traffic.
- Bicycle storage would be provided in the parking garage.
- IteI would establish a carpooling system and would preferentially allot parking in the building garage for carpool and vanpool vehicles.

- During the demolition and excavation period, haul trucks and delivery vehicles could enter and exit the site between the hours of 9 a.m. and 4 p.m. only, so as to avoid conflicts with peak-hour traffic. The project sponsor intends to meet with the Traffic Engineering Division of the Bureau of Engineering and the Office of Environmental Review to determine necessary and feasible construction traffic mitigation measures which would be satisfactory to all parties.

- The overload that would occur on the SanTrans mainline (Highway 101 Route) due to cumulative development could be alleviated by additional buses, possibly by shifts in routes, and headway changes. (The San Mateo Transit District is the agency controlling the assignment of additional buses; it is controlled by funds available through its taxing and revenue system. The Metropolitan Transportation Commission is the regional administrator of Federal Urban Mass Transit funds and California funds.)

- Provision of a direct entrance to the Market St. subway from the project site could induce 2% of the IteI employees and additional employees from other tenant firms to use transit. It would reduce pedestrian-vehicle conflicts at the intersection of Pine and Davis Sts. This measure was rejected because security precautions would be required and the nearest mezzanine level entrance would be only 170 ft. from the building lobby.

TABLE 22 (Continued): MITIGATION MEASURES PROPOSED TO MINIMIZE THE ADVERSE EFFECTS OF THE PROJECT

MEASURES TO BE INCLUDED
IN PROJECT

MEASURES RECOMMENDED
AND/OR UNDER CONSIDERATION

MEASURES REJECTED
(AND REASONS FOR REJECTION)

<p>- Itel would use its best effort to establish a "flextime" system of flexible arrival and departure hours for employees to reduce concentration of employees commuting during peak traffic hours.</p>	<p>- The project sponsor recognizes the need for transit services to meet the peak demand generated by cumulative office development in Downtown San Francisco, and would consider participation in a Downtown assessment district or other such mechanism to provide funds for transit, should such a mechanism be developed.</p>	
<p>- The 101 California St. management office staff would coordinate a carpooling system for the employees of firms in the building.</p>		
<p>- Itel would operate a shuttle bus to the proposed project for employees from a parking garage it now owns at 55 Francisco St., outside the Downtown Core.</p>	<p>- Traffic generated by cumulative Downtown development, including the proposed project, is projected to degrade the Level of Service at the intersection of Beale and Mission Sts. to E in 1981. The Level of Service could be retained at D if the Beale St. approach were restriped from 3 to 5 southbound lanes, adding 2 freeway-only lanes. The street is wide enough for 5 lanes, if towaway restrictions were put on parking during peak hours. Restriping the street would be entirely under the jurisdiction of the Bureau of Traffic Engineering and would be considered a possible solution by the Bureau when the projected conditions develop (H. Quan, Traffic Engineer, Traffic Engineering Division, telephone communication, 2 May 1979).</p>	

AIR QUALITY IMPACTS

- During the demolition period, unpaved surfaces would be wetted with reclaimed water to hold down dust; if this were done twice a day with complete coverage, particulate emissions would be reduced about 50%.
- Water-based or latex paints would be used on all interior drywalls painted by the general contractor or project sponsor, rather than oil-based paints which emit hydrocarbons while drying; this would reduce hydrocarbons from drying paint by about 60%.

TABLE 22 (Continued): MITIGATION MEASURES PROPOSED TO MINIMIZE THE ADVERSE EFFECTS OF THE PROJECT

MEASURES TO BE INCLUDED IN PROJECT	MEASURES RECOMMENDED AND/OR UNDER CONSIDERATION	MEASURES REJECTED (AND REASONS FOR REJECTION)
NOISE IMPACTS		
- To minimize construction noise, only muffled gasoline and diesel-powered construction equipment or electrically powered construction equipment would be used.	- Piledriving activity could be limited to hours resulting in the least disturbance to neighboring uses (e.g. 4:30 p.m. to 11 p.m.), or holes for the piles could be pre-drilled for approximately the first 30 ft., then the piles driven to reduce noise impacts. The project sponsor intends to meet with the Bureau of Engineering and the Office of Environmental Review to determine necessary and feasible mitigation measures which would be satisfactory to all parties.	
- The cooling tower on the roof of the 7-story base building would be muffled to comply with the City Noise Ordinance, Section 2909.		
- Piledrivers would be shielded and muffled to limit noise emissions to 85 dBA at 50 ft.		

ENERGY IMPACTS

- The structure would have dual pane windows to reduce heating and cooling needs.
- High-efficiency, 3-tube, parabolic light fixtures would be used in office areas to conserve electricity.
- The structure would have a computer control system which would be responsive to different energy needs in various parts of the structure. The computer would monitor the electrical peak use curve and would shed nonvital electrical loads during peak energy demand periods.
- The building management would make storage containers available to tenants for collection and storage or recyclable solid wastes such as glass, metal, computer cards and newspapers.

TABLE 22 (Continued): MITIGATION MEASURES PROPOSED TO MINIMIZE THE ADVERSE EFFECTS OF THE PROJECT

MEASURES TO BE INCLUDED
IN PROJECT

MEASURES RECOMMENDED
AND/OR UNDER CONSIDERATION

MEASURES REJECTED
(AND REASONS FOR REJECTION)

GEOLOGY AND HYDROLOGY IMPACTS

- Excavation pit walls would be shored up and protected from slumping or lateral movement of soils into the pit. Shoring and sheeting with soldier beams could be used for this purpose. The contractor would comply with the Excavation Standards of the California Occupational Safety and Health Agency (Department of Industrial Relations).

- Davis St. adjacent to the site would be mechanically swept by the demolition and excavation contractors as required by Code so that silt would not be washed into the storm drains and dust would be reduced. This would be a provision of excavation and demolition contracts.

- Groundwater observation wells would be installed for monitoring the level of the water table and other instruments to monitor potential settlement and subsidence. The City would require a lateral and settlement survey to monitor any movement or settlement of surrounding buildings and adjacent streets during the dewatering. Control lines and benchmarks would be established for monitoring horizontal and vertical movement. Costs for the survey and any necessary repairs to services under the streets would be borne by the contractor.

- If, in the judgment of City engineers, unacceptable subsidence occurs during the construction, groundwater recharge would be begun to halt the settlement. This might cause a delay in construction.

- Groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this is found necessary by the Industrial Waste Division of the Department of Public Works, to prevent sediment from entering the storm drain/sewer lines.

- The loads of haul trucks carrying excavated materials from the site could be covered with a tarp to reduce dust and potential spillage onto the streets. This measure was rejected because it is not required by Code nor is it customary in San Francisco. A provision of the general contract would prohibit the overloading of trucks which would help to reduce spillage.

TABLE 22 (Continued): MITIGATION MEASURES PROPOSED TO MINIMIZE THE ADVERSE EFFECTS OF THE PROJECT

MEASURES TO BE INCLUDED IN PROJECT	MEASURES RECOMMENDED AND/OR UNDER CONSIDERATION	MEASURES REJECTED (AND REASONS FOR REJECTION)
---------------------------------------	--	--

SEISMICITY IMPACTS

- The project sponsor would build the project in compliance with the recommendations of the structural engineers and in accordance with the standards of the Structural Engineers Association of California.
- Nonstructural elements of the building, such as hanging light fixtures, hung ceiling and wall partitions, and mechanical equipment would be attached firmly in such a manner as to reduce the likelihood of their falling during an earthquake.
- Emergency safety procedures to be followed by tenants during an earthquake would be developed by the project sponsor. A handbook would be prepared which would detail the procedures.
- An emergency water supply and pumps would be provided as required by the San Francisco Building Code so that the sprinkler system would be more likely to be operable after an earthquake. This emergency measure would mitigate the potential hazard created by fires occurring at a time when the water supply may be cut off by earthquake damage to water mains.

VI. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

URBAN DESIGN

The proposed project would not conform to Major New Development Policy 4 of the Urban Design Plan which provides that "buildings to the south, east and west of plazas should be limited in height or effectively oriented (to permit the penetration of sunlight to such plazas)," in that the proposed plaza would be to the north of the building and would be partially in shade throughout most daylight hours at most times of the year./1/

64 Pine St., rated "1" in the 1976 Architectural Inventory, would be demolished, as would 2 Pine St., rated "B", and 5 other buildings rated "C", in the unpublished Heritage Architectural and Historical Survey.

TRANSPORTATION

Construction hauling during peak traffic periods would temporarily conflict with peak-hour commuting traffic.

Project-generated traffic would increase traffic volumes on the surrounding local streets. The percent increases in project-generated traffic above the 1981 projected base traffic volumes would range from 1% on Market, Davis and Pine Sts. to 30% on Front St. where the parking garage entrance and exits would be located.

AIR QUALITY

Construction activities would result in a temporary increase in airborne dust in the project vicinity. Because project-generated traffic and traffic from cumulative Downtown development would increase emissions of air pollutants, attainment of the standards would be impeded.

NOISE

Piledriving and other construction activities would temporarily result in an increase in noise levels of about 16 dBA along California and Davis Sts. and about 18 dBA on Pine St., across from the site.

ENERGY

During operation, the project would require about 17 million kilowatt hours of electricity per year, generated predominantly from nonrenewable fossil fuels, and about 0.8 million cu. ft. of natural gas per year. This would be about 8% less than the consumption allowable under State energy conservation standards.

CUMULATIVE DEVELOPMENT

The project would contribute incrementally to cumulative traffic, transit, visual, air quality, and community service impacts produced by development now under construction and proposed in the Downtown business district.

NOTE - Significant Environmental Effects

/1/ This provision of the Urban Design Guidelines which calls for location of the plaza to the south, east or west for maximum penetration of sunlight may be in conflict with Major New Development Policy 4 which would "promote building forms that will respect and improve the integrity of open spaces and other public areas," and with Section 1C of the "Design Guidelines for Major New Development, a supplement to the San Francisco Urban Design Plan," (R. Hedman, Department of City Planning, August 1978), which encourages consideration of definition and clarity of form in determining the location of plazas.

VII. ALTERNATIVES TO THE PROPOSED PROJECT

Several alternatives to the project as proposed are described and compared below. Refer to Table 23, p.163, for a comparison of the floor areas of the alternatives and to Table 24, p.164, for a comparative impact summary. Travel and parking demand and air pollution emissions generated by each alternative are shown in Table 25, p.196.

A. NO-PROJECT ALTERNATIVE

This alternative, as defined by the California Environmental Quality Act, would entail no change to the project site as it now exists. The comparatively low value of the improvements would return the City a low tax revenue, and the quality of the buildings would return the property owner a low rent (see Section IV.E, p. 79). Parcel 1, at the southwest corner of Davis and California Sts. would be an unusable vacant lot as it is approximately 20 feet below the street surface. If there were no project, the traffic and transit conditions described as 1981 base conditions with cumulative development in Section IV.F, p. 94, and the air quality conditions on nearby streets, would continue to prevail. Demands for community services at the site would remain unchanged. This alternative would preserve options for future development of the site.

If "no project" were defined as no action beyond making the property suitable for complete reuse, remodeling would be required to bring the buildings up to applicable codes. The rents and consequent tax values which the market would establish for the resultant quality of the property would be disproportionate to the rehabilitation costs and the value of the land. 64 Pine St., rated "1" in the 1976 Architectural Inventory, would not be demolished, nor would 2 Pine St., rated "B" in the unpublished Heritage Architectural and Historical Survey, or 5 other buildings rated "C" in that survey.

Were another site for the project sought in Downtown San Francisco, it would have to meet the following site selection criteria used by the project sponsor in choosing the proposed site:

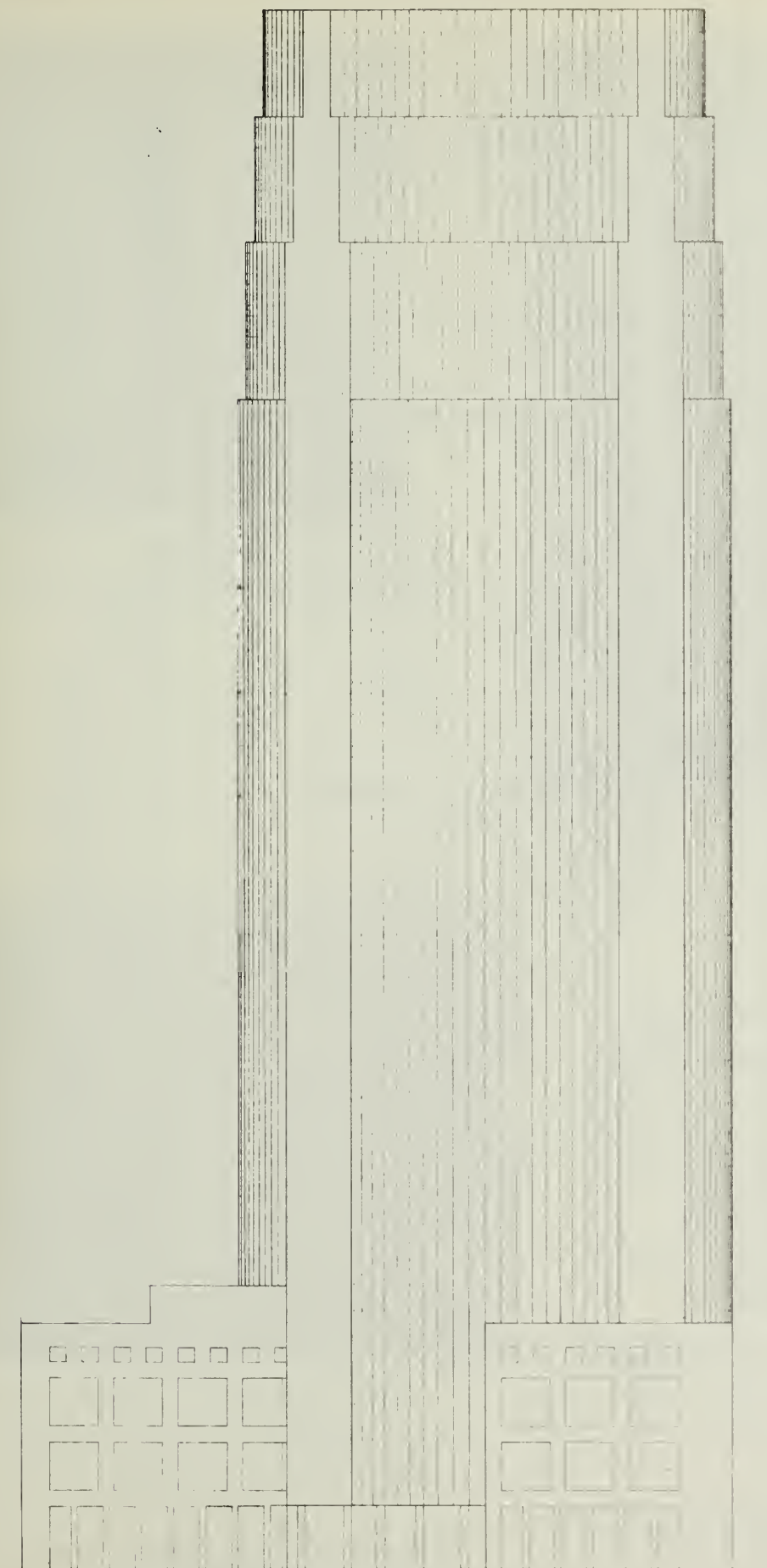
- proximity to the Financial District and Market and California Sts.
- proximity to BART, the ferry terminal, cable car and other Muni lines
- freeway access to the East Bay, Peninsula and San Francisco International Airport
- nearby financial services, hotels, restaurants and retail stores.

B. CYLINDRICAL TOWER WITH THREE SETBACKS IN THE UPPER TWELVE STORIES

In this design, a third setback of about 3 ft. would be added to the cylindrical project tower. The setbacks would occur at the 37th, 42nd and 46th floors, reducing the diameter measurement at those levels to approximately 185 ft., 180 ft., and 175 ft., respectively (see Figure 32). As in the proposed project, the materials on each facet of the facade would change from stone to glass or glass to stone at each of the 3 setbacks.

The width of the flat planes (see Figure 33, p. 130) would be widened by 10 ft. and then narrowed on either side by 5 ft. at the 42nd and 46th stories. This treatment, coupled with the setbacks, the change in surfacing materials at the setbacks, and the inverted facets (see Section II, p. 7), would provide a visual variation at the upper levels which would lessen the apparent bulk. The setbacks would begin at a height of about 450 ft. (35 ft. less than the proposed project). This is below or near the height of surrounding high-rise buildings (see Figure 34, p. 131 for views from One Embarcadero Center and pedestrian levels). The visual effect of this design on the skyline would be similar to the proposed project but the apparent bulk would be reduced by the addition of the third setback (see Figures 35 and 36, p. 132 and 133).

The gross floor area would be about 1,297,000 sq. ft., about 9,000 sq. ft. (1 %) less than the project. All of this reduction would be in office space. Retail and commercial space would remain the same. This 3-setback alternative would be identical to the proposed project with respect to orientation on the block, height, 95-ft.-high glass-enclosed lobby, surfacing materials and



0 50'

FRONT ST.

FIGURE 32 THREE-SETBACK
ALTERNATIVE -
WEST ELEVATION

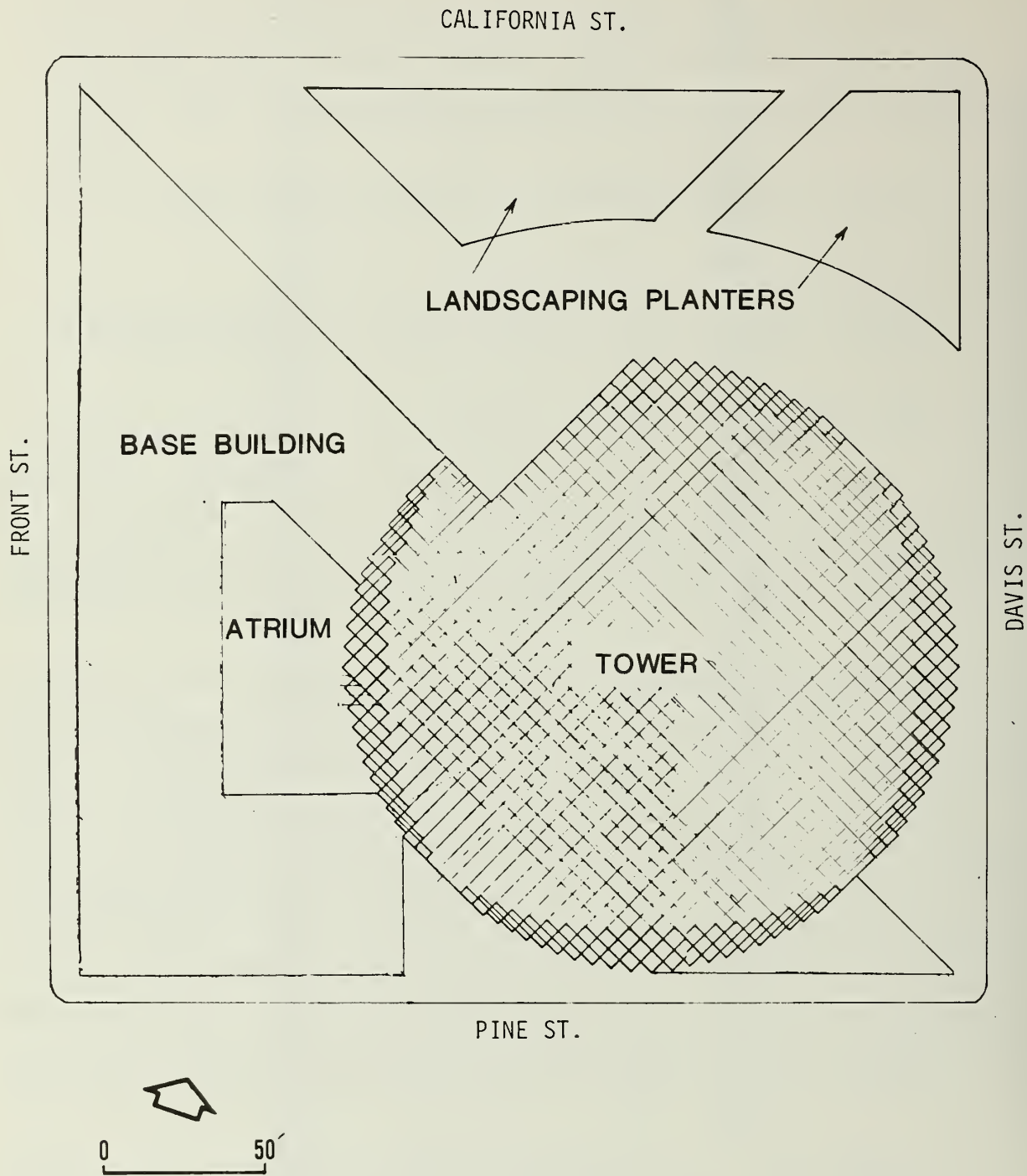
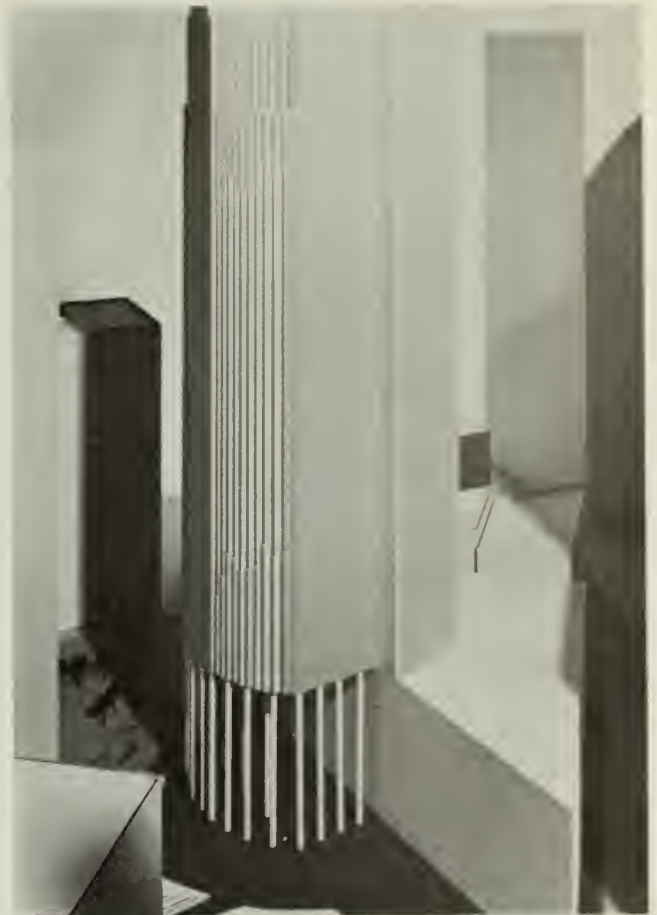


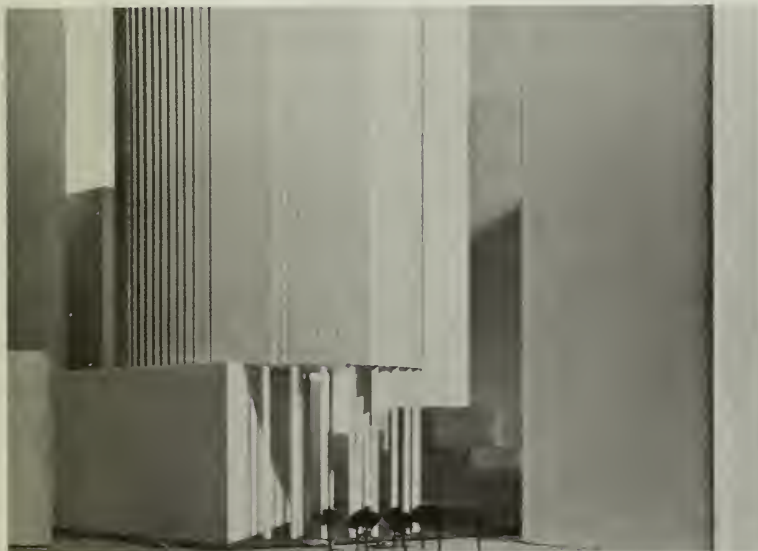
FIGURE 33 THREE-SETBACK ALTERNATIVE-PLAN VIEW



A. Street level from Davis St. near Sacramento St. between Two and Three Embarcadero Center south to Market St.



B. From upper floors of One Embarcadero Center near Sacramento St. and Front St. southeast to site.



C. From street level, the PG&E Building on Market St. between Main and Beale Sts. northwest to site. The Mutual Benefit Life Building is on the right.

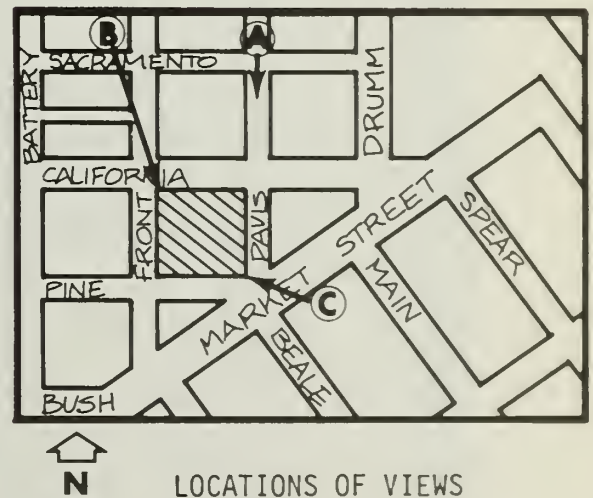


FIGURE 34 VIEWS OF THREE-SETBACK ALTERNATIVE AND AREA MODEL



↑ ALTERNATIVE DESIGN

- ↑ ONE MARKET PLAZA ↑ FERRY BUILDING ↑ BANK OF AMERICA ↑ TRANSAMERICA BUILDING

FIGURE 35 THREE-SETBACK ALTERNATIVE VIEW
FROM YERBA BUENA ISLAND



↑ COIT TOWER

↑ ALTERNATIVE DESIGN

↑ TRANSAMERICA BUILDING

↑ ONE EMBARCADERO CENTER

↑ BANK OF AMERICA

EXISTING STRUCTURES

FIGURE 36 THREE-SETBACK ALTERNATIVE VIEW
FROM GOLDEN GATE BRIDGE VISTA POINT

design of the base building. At the allowable 7% of gross floor area, the number of parking spaces would be about the same as the project. As the diameter has been interpreted by the acting Zoning Administrator to be the length of a cylindrical building under Section 270 of the City Planning Code, an exception to the maximum length provision of 170 ft. would have to be obtained under provisions of Sections 271 and 303 of the Code, similar to the requirements affecting the proposed project.

Shadow and wind effects would be the same as for the proposed project./1/ Demands for community services would also be approximately the same. About 3,700 people would be employed in the building. The fair market value would be about the same as the proposed project at \$97.4 million with an assessed value of \$24.4 million; the net addition to the San Francisco property tax base would be \$21.5 million, the same as the proposed project. The composite property tax revenue to the City and County of San Francisco and the net increase over existing total composite property tax revenues from buildings currently on the site would be about the same as the project. The total number of automobile and transit trips generated by this alternative would be about 1% less than the project. All traffic, transit, parking and pedestrian impacts discussed in the Transportation section (IV.F, p. 87) would remain unchanged. Emission of air pollutants would decrease by 1%. Traffic noise, energy use, and construction and seismic safety effects would remain the same as for the proposed project.

C. PROJECT WITH PLAZA ON THE SOUTH

This alternative would place the cylindrical tower close to the corner of California and Davis Sts. The 7-story base building would front on Front and California Sts. and the plaza would face Pine and Davis Sts., opening up to Market St. (see Figure 37). In all respects other than orientation, the building would be identical to the proposed project. This alternative would result in a continuous 95-ft.-high facade on California St. between Front and Davis Sts., thereby retaining the canyon-like quality which the street has between the Bank of America Plaza and 100 California St., a distance of approximately 1200 ft. in which all buildings front on the property line.

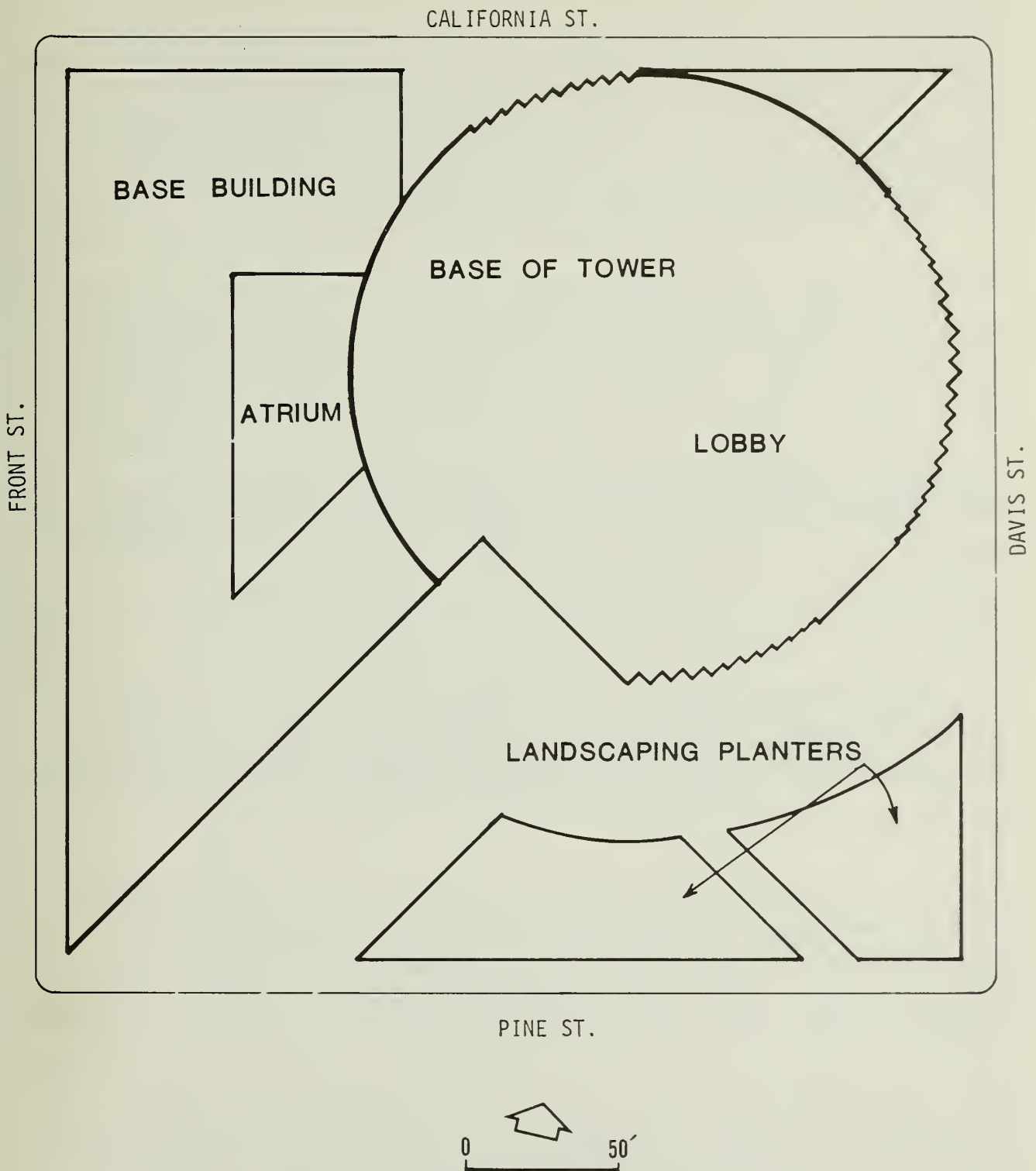


FIGURE 37 SOUTH-FACING
PLAZA ALTERNATIVE-
SITE PLAN

This alternative would extend the irregular open space on the north side of Market St. from Robert Frost Plaza through the Mutual Benefit Life plaza and westward up Pine St. to Front St. The plaza in this location would be a visual extension of the Mutual Benefit Life plaza. The tower would be closer to the Mutual Benefit Life tower at No. 1 California St. and to the Union Bank tower at 50 California St. As the proposed tower and 7-story base structure would contain the same floor area and would have the same design features as the proposed project, the structure would require an exception to the tower bulk limit through the Conditional Use procedures.

Placing the tower on the northeast corner of the site would move it out from behind the existing highrise at Pine and Front Sts. In this position, the tower would intercept a greater volume of wind than the other alternatives, especially under westerly wind conditions, thus sheltering the project plaza and reducing wind speeds at the Mutual Benefit Life plaza. This alternative would result in greater increases in wind speeds along California St., and would probably greatly accelerate wind speeds in the gap between the tower and the Mutual Benefit Life building across Davis St. Under northwesterly wind conditions, these winds might extend as far as the Mutual Benefit Life plaza./1/

The shadows cast by the project tower located near the corner of Pine and Davis Sts. differ from those cast by the alternatives previously discussed. (Photographs of the projected shadow patterns for the South Plaza alternative are included in Appendix R, p. 253.)

Because of its more northerly location, the tower in this alternative would cast noon-time shadows on the Two Embarcadero Center podium level during spring and fall. At these times of year, 333 Market St., currently under construction, would cast mid-day shadows on the eastern portion of the on-site plaza.

During winter months, the project tower would cast shadows on the Two Embarcadero Center podium level around noon, while buildings to the south of the site would cast mid-day shadows on the proposed plaza.

The proposed plaza would be relatively free of shadows during summer morning and mid-day hours.

The triangular block south of the site (bounded by Market, Front and Pine Sts.) is currently occupied by two structures of 8 and 9 stories. It should be noted that this block is located in the 600-ft. height limit district, and it is conceivable that a structure taller than the existing buildings might be developed on the site in the future. Such a structure could cast mid-day shadows on the on-site plaza during most seasons of the year.

Impacts on community services and economics, transportation, and all other areas of environmental concern would remain the same as discussed in the Setting and Impact sections of this report.

D. ALTERNATIVES SIMILAR TO THE PROJECT WHICH WOULD NOT REQUIRE A CONDITIONAL USE PERMIT

The project design could be modified so that the length of the building, as defined in the City Planning Code, would not exceed 170 feet. Such a modified design would conform to the bulk provisions of the 600-I Height and Bulk District and would not require a Conditional Use permit. Three alternatives which would comply with the Code, thus avoiding the need for an exception to its bulk provisions, have been developed.

FLAT-SIDED OCTAGON

The first design would have a modified "octagonal" 600-ft.-high tower with a diameter of 190 ft. and a code-conforming length of 170 ft. There would be no setbacks (see Figure 38). The glass-surfaced longer sides of the "octagon" would be flat; the shorter sides would be faceted vertically and alternately surfaced with glass and light-colored, natural stone in the same manner as the project. The base building, plaza, and landscaping planters would be similar to the proposed project. The glass-enclosed lobby would be similar, but would be about 500 sq. ft. smaller, reflecting the changed tower shape (see

0 50'

FRONT ST.

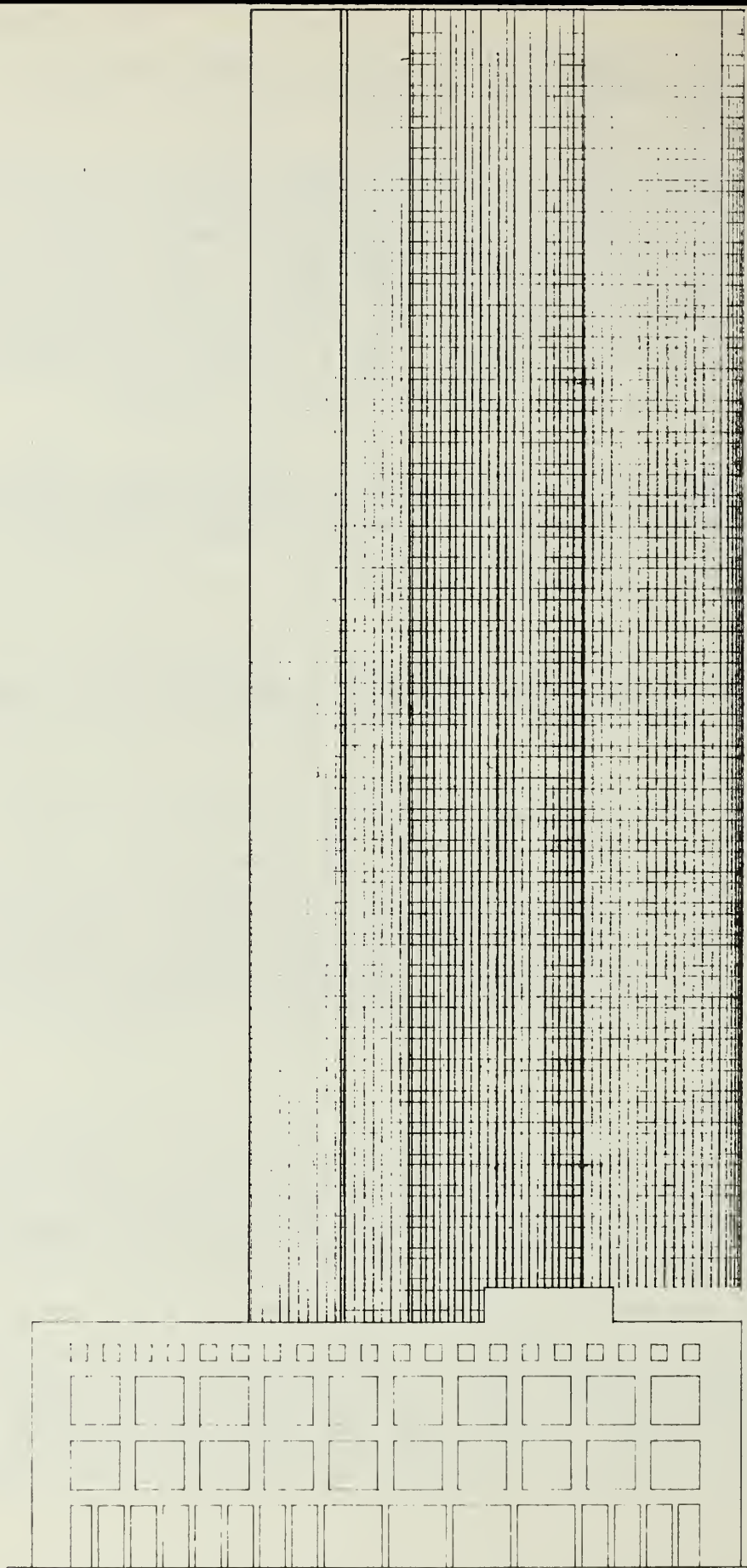


Figure 39). Views from One Embarcadero Center and pedestrian levels are shown in Figure 40. p. 141. The visual effect of the building on the skyline would be similar to the proposed project, but no setback would be visible (see Figures 41 and 42, p. 142 and 143).

The flat-sided octagonal building would contain about 1,268,000 gross sq. ft. of floor area, about 38,000 sq. ft. (3%) less than the proposed project. It would contain 1,196,000 sq. ft. of office space, a decrease of 37,000 sq. ft. (3%). The retail and commercial/office areas would remain the same. There would be about 250 parking spaces in the below-grade garage, about 10 spaces fewer than the proposed project.

The effects of this design on shadows and winds at pedestrian levels would be unchanged from those of the proposed project./1/ The design modifications would not alter the requirements for community services. About 3,600 employees would occupy the building. The fair market value is estimated at \$95.4 million, yielding an assessed value of \$23.9 million. The net addition to the tax base would be \$21.0 million. The composite property tax revenue to San Francisco and the total net composite property tax revenue would be about the same as the proposed project.

About 2% fewer automobile and transit trips would be generated by the building. The traffic, transit, parking and pedestrian impacts of this design would be similar to those discussed in the Transportation section (IV.F.p) of this report. Production of air pollutants attributable to building traffic would be reduced by 2%. There would be no change from the impacts of the proposed project on traffic noise or construction and seismic safety.

FACETED OCTAGON

In this alternative, the tower would again have a modified octagonal shape. There would be no setbacks (see Figure 43, p. 144). The longer sides of the "octagon" would be faceted in a manner similar to that of the project and would be surfaced alternately with glass and light-colored natural stone. The shorter sides of the tower would be flat and surfaced with glass. The base building, plaza, and landscaping planters would remain the same as the project (see Figure 44, p. 145). The glass-enclosed lobby would be about 1,500 sq. ft. smaller. The 600 ft. tall building would have a diagonal measurement of

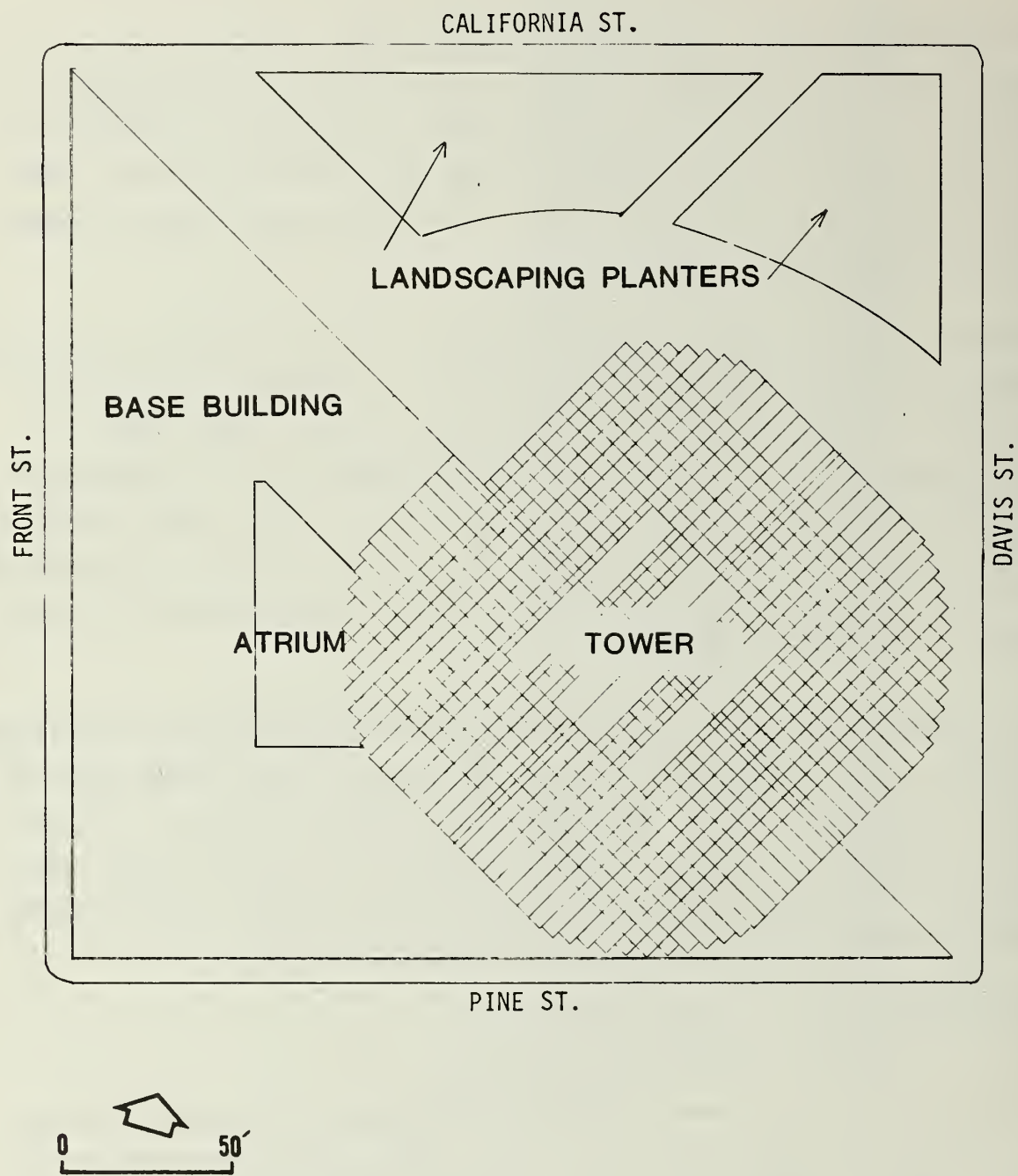
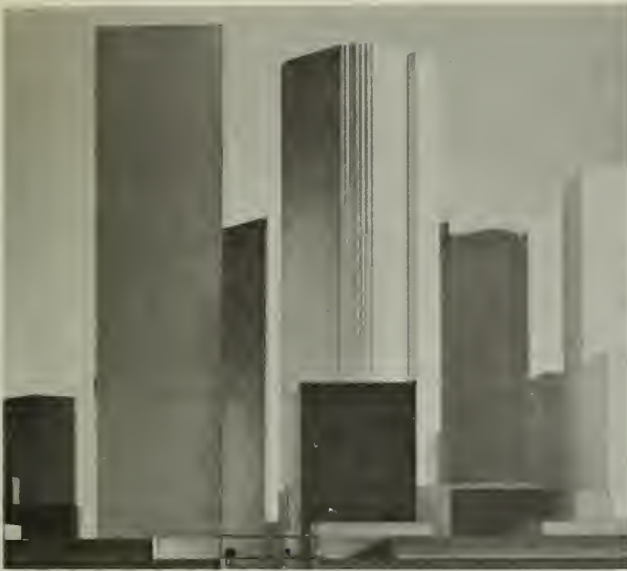
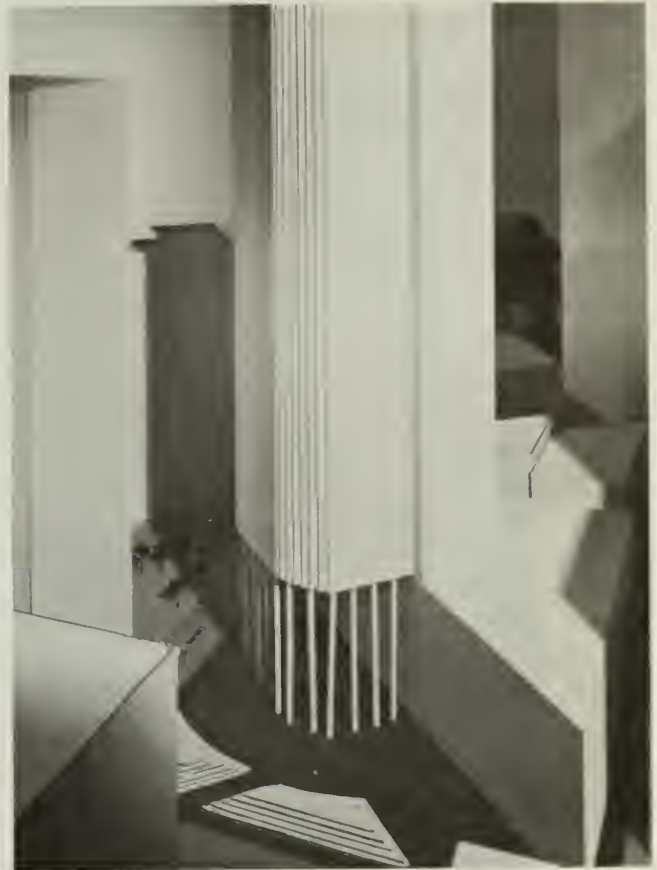


FIGURE 39 FLAT-SIDED OCTAGONAL
ALTERNATIVE - PLAN VIEW



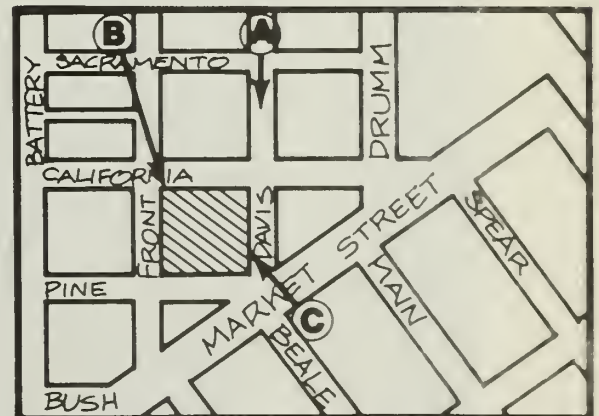
A. Street level from Davis St. near Sacramento St. between Two and Three Embarcadero Center south to Market St.



B. From upper floors of One Embarcadero Center near Sacramento St. and Front St. southeast to site.



C. From street level, the PG&E Building on Market St. between Main and Beale Sts. northwest to site. The Mutual Benefit Life Building is on the right.



LOCATIONS OF VIEWS

FIGURE 40 VIEWS OF FLAT-SIDED OCTAGONAL ALTERNATIVE AND AREA MODEL



↑ **ALTERNATIVE DESIGN**

↑ ONE MARKET PLAZA

↑ FERRY BUILDING

↑ BANK OF AMERICA

↑ TRANSAMERICA BUILDING

FIGURE 41 FLAT-SIDED OCTAGONAL ALTERNATIVE
VIEW FROM YERBA BUENA ISLAND



↑ **ALTERNATIVE DESIGN**

↑ COIT TOWER

↑ TRANSAMERICA BUILDING

↑ ONE EMBARCADERO CENTER

↑ BANK OF AMERICA

EXISTING STRUCTURES

FIGURE 42 FLAT-SIDED OCTAGONAL ALTERNATIVE
VIEW FROM GOLDEN GATE BRIDGE VISTA POINT

0 50'

FRONT ST.

FIGURE 43

FACETED OCTAGONAL
ALTERNATIVE-
WEST ELEVATION

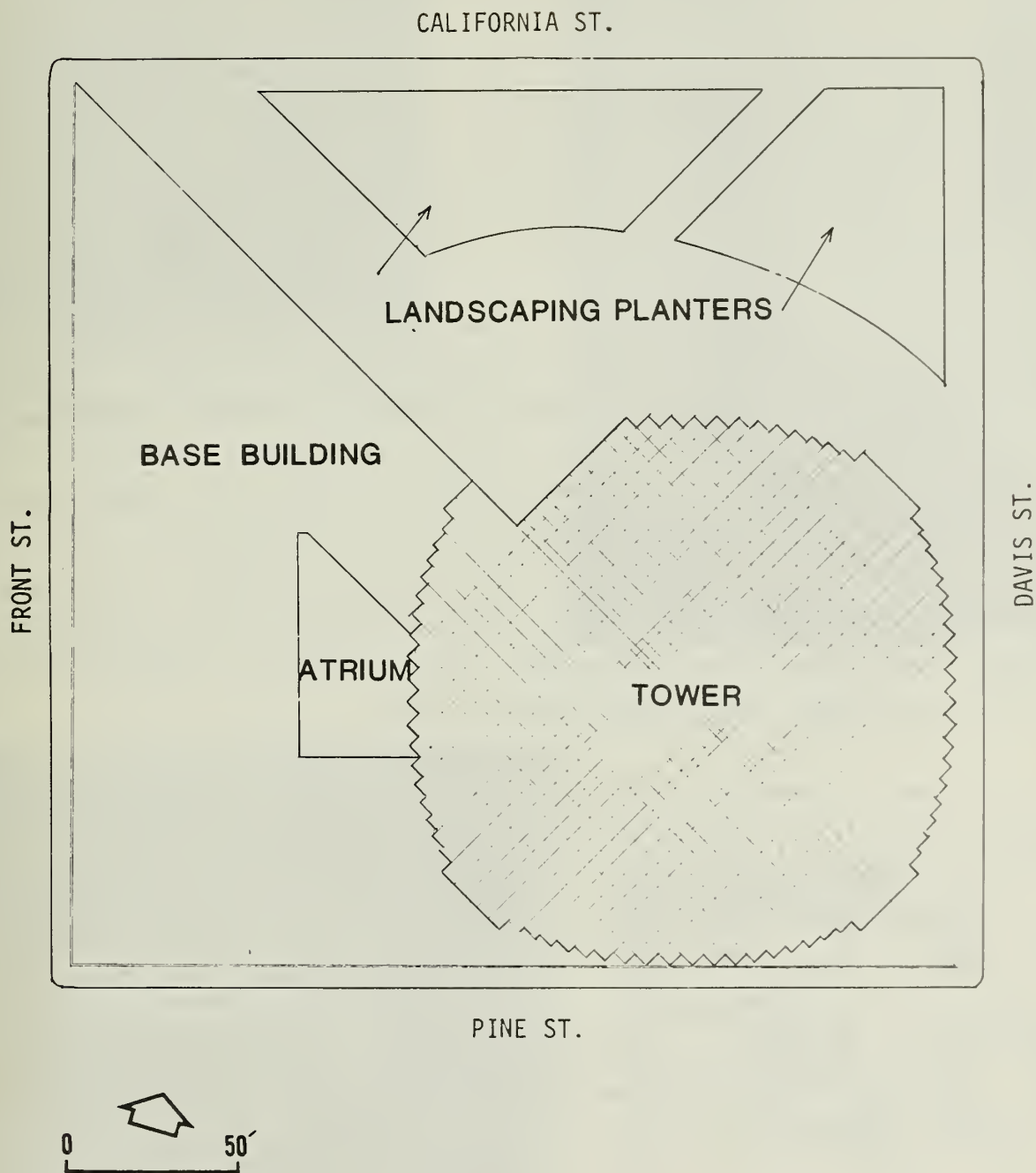


FIGURE 44 FACETED OCTAGONAL
ALTERNATIVE - PLAN VIEW

184 ft.; the length would be 170 ft. Pedestrian level views of this design would be similar to the project as proposed (see Figure 45, p.147). The tower would have a similar appearance on the skyline, but would have no setbacks at the upper levels (see Figures 46 and 47, p. 148 and 149).

The building would contain about 1,192,000 sq. ft. of gross floor area, about 114,000 sq. ft. (9%) less than the project. There would be 1,121,000 sq. ft. of gross office space, about 112,000 sq. ft. (9%) less than the project. Retail and commercial space would remain the same. The garage would have about 240 parking spaces, about 20 spaces fewer than the proposed project.

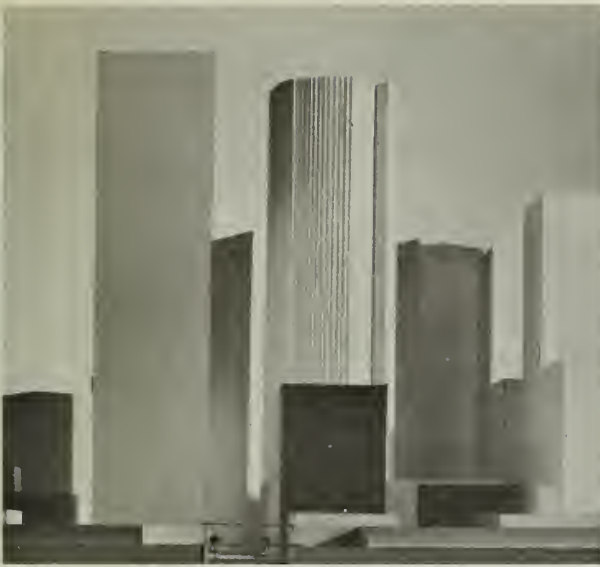
There would be no change in shadows or wind speeds at pedestrian levels./1/ The structure would use about 140,000 gallons of water per day, 7% less than the proposed project. Sewage flows would be similarly reduced. An estimated 6 tons of solid waste per day, 8% less, would be generated. Employment on the site would be about 3,400 people. The building's estimated fair market value of \$90.3 million would result in an assessed value of \$22.6 million. \$19.7 million would be the net addition to the San Francisco property tax bases. The composite tax revenue to the City and County would be about \$580,000 to \$720,000, about 9% less than the project; the net increase in composite total property tax revenues would also be about 9% less.

About 8% fewer automobile trips and 9% fewer transit trips would be generated by this alternative. The effects of travel generated by the building on intersection capacities and transit system would remain the same as described in the Transportation section (IV.F, p. 87). Pedestrian levels of service would remain at Level A.

Emission of air pollutants would be reduced by 8%. The level of noticeable traffic noise, and construction and seismic safety impacts would remain the same as the proposed project.

SQUARE TOWER

A building with a plaza along California and Davis Sts. and a 90-ft. high triangular base building could be designed with a square, rather than cylindrical, tower. The tower would be centered in the same place as the



A. Street level from Davis St. near Sacramento St. between Two and Three Embarcadero Center south to Market St.



B. From upper floors of One Embarcadero Center near Sacramento St. and Front St. southeast to site.



C. From street level, the PG&E Building on Market St. between Main and Beale Sts. northwest to site. The Mutual Benefit Life Building is on the right.

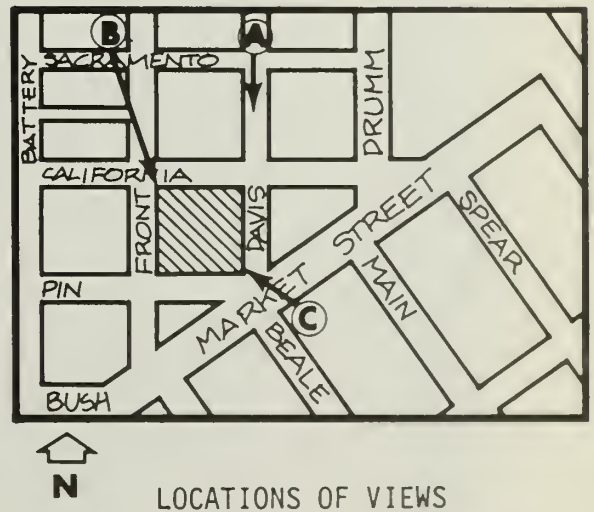


FIGURE 45 VIEWS OF FACETED OCTAGONAL ALTERNATIVE AND AREA MODEL



↑ ALTERNATIVE DESIGN

- ↑ ONE MARKET PLAZA
- ↑ FERRY BUILDING
- ↑ BANK OF AMERICA
- ↑ TRANSAMERICA BUILDING

FIGURE 46 FACETED OCTAGONAL ALTERNATIVE
VIEW FROM YERBA BUENA ISLAND



↑ **ALTERNATIVE DESIGN**

↑ TRANSAMERICA BUILDING

↑ ONE EMBARCADERO CENTER

↑ BANK OF AMERICA

EXISTING STRUCTURES

↑ COIT TOWER

FIGURE 47 FACETED OCTAGONAL ALTERNATIVE
VIEW FROM GOLDEN GATE BRIDGE
VISTA POINT

project tower and the exterior walls would parallel the sidewalks (see Figure 48). The square tower would have a diagonal measurement of 200 ft. and a length of 142 ft. The height would remain 600 ft. The glass-enclosed lobby would contain 3,000 sq. ft. (23%) less than the proposed project. The plaza would be correspondingly larger. As the tower would not be faceted, it is assumed that it would be surfaced with either glass or natural stone. The base building and atrium would remain the same. The plaza would have some form of landscaping planters.

The building would contain about 1,060,000 sq. ft., about 246,000 sq. ft. (19%) less than the project. It would have 990,000 sq. ft. of office space, or about 243,000 sq. ft. (20%) less than the project. Retail and commercial/office areas would be unchanged. The 210-car garage would have approximately 50 spaces fewer than the project.

Visually this variant would be the least distinctive of the alternatives discussed, and would look more like its square and rectangular neighbors except that it would be more than 100 ft. higher. It would provide the least amount of gross floor area of any of the alternatives previously discussed.

This alternative would worsen the wind conditions in the Mutual Benefit Life plaza, particularly during northwesterly winds, compared with the proposed cylindrical building (see Appendix P, p. 233). This would occur because a rectangular building "traps" much of the wind against the flat face, forcing it downward where it then impacts pedestrian use areas. A cylindrical building, as proposed for the project, would lower down-wind impacts. On-site plaza winds would be similar to those resulting from the proposed project.

Sunlight and shadow effects would be similar to the proposed project; the shadow of the tower would be less wide at noontime when the sunlight would be intercepted by the side, rather than the diagonal dimension, of the tower.

Approximately 120,000 gallons of water per day would be used by the structure. This would be 20% less than the proposed project. Sewage flows would also be reduced by 20%. The structure would be expected to generate about 15% less solid waste, or 5.5 tons daily. About 3,000 people would be

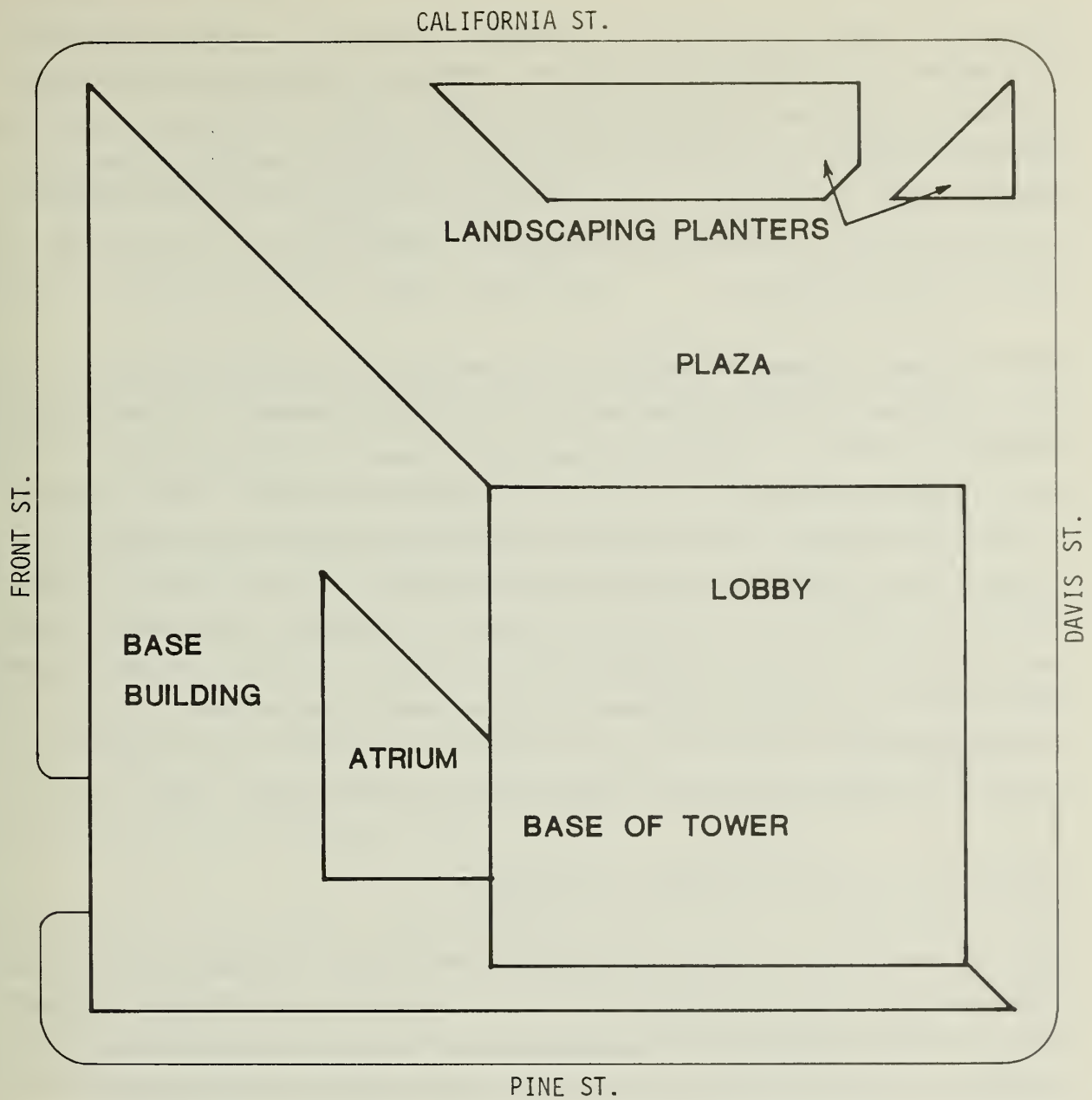


FIGURE 48 SQUARE TOWER
ALTERNATIVE -
SITE PLAN

employed on site. The estimated fair market value would be \$80 million and the assessed value \$20 million. The net addition to the property tax base would be \$17.1 million. This would produce about 20% less than the project in composite property tax revenues to the City and County, or \$512,000 to \$640,000. The net increase in total composite property tax revenues over existing buildings on the site of \$650,000 to \$850,000 would be about 22% less than the proposed project.

About 19% fewer automobile and transit trips would be generated and auto-related pollutant emissions would be similarly reduced. The impacts of automobile travel generated by the building on Levels of Service at intersections would remain the same as the proposed project. This reduction in travel volumes would not be sufficient to keep the peak-hour Level of Service at the intersection of Market and Davis Sts., now at Level C, from dropping to a borderline Level C/D, nor would it be sufficient to keep the peak-hour Level of Service on Beale St. from dropping from D to E when traffic from cumulative Downtown development is also added. The impacts of building-generated transit travel would also be similar to the project as proposed. Sidewalk pedestrian Levels of Service would remain at A.

VARIANTS OF THE CODE-CONFORMING ALTERNATIVES

Under the provisions of the City Planning Code, about 1,374,000 gross sq. ft. of floor area could be developed on the site, including development bonuses. The base building could be a maximum height of 150 ft., or about 11 stories. The height of each of the base buildings of the three Code-conforming alternatives discussed above could be increased to include a greater floor area and still remain in conformity with the Code.

The base building of the flat-sided octagonal tower design could be increased to 10 stories. The resulting 1,368,000 gross sq. ft. of floor area would be about 62,000 sq. ft. (5%) more than the project as proposed. The height of the base would then be about 130 ft. The base buildings of the faceted octagonal and square tower alternatives could be increased to 11 stories from 7, or about 143 ft. in height. The gross floor area of the faceted octagonal alternative would then be about 1,325,000 sq. ft., 19,000 sq. ft. (2%) greater

than the proposed project. The 1,192,000 gross sq. ft. contained in the variant of the square tower design would be about 113,000 sq. ft. (9%) less than the project. Under any of these variants, the added height of the base building would increase the visual bulk of the structure, particularly when viewed from street level.

VARIANT PROVIDING A DIRECT SUBWAY CONNECTION

The project site is 170 ft. from the nearest BART/Muni Metro entrance. A BART/Muni Metro entrance could be built on the project block, connecting BART/Muni Metro directly with either the proposed plaza or parking garage. The design modification could be applied to any of the code-conforming alternatives, the three-setback design, or the project as proposed. The results of a questionnaire distributed to Intel employees indicate that an additional 2% of the employees (or 26 Intel employees) would use BART or Muni Metro to commute to work if a direct entrance were available. A similar percentage of non-Intel employees would be expected to switch from other forms of transportation to BART or Muni Metro. An on-site entrance would also reduce the number of pedestrians added at peak to the crosswalks at the intersection of Pine and Davis Sts.

Construction of the tunnel linking BART/Muni Metro with the project site would require the relocation of water and sewer mains and utility lines now located under Pine and Davis Sts. In the view of the project sponsor, this would be prohibitively expensive. Traffic on those streets would be disrupted during the construction period and there could be some temporary water and utility service interruptions. The project sponsor anticipates that such a connection to the building would pose security problems.

VARIANT PROVIDING REDUCED ON-SITE TOTAL PARKING OR INCREASED SHORT-TERM PARKING

The proposed project and all alternatives discussed would provide the maximum off-street parking permitted by the City Planning Code. About 20% to 25% of the spaces would be short-term. Objective 1, Policy 10 of the revised Downtown Transportation Plan (Revisions to the Transportation Element of the Master Plan Regarding Parking, City Planning Commission Resolution 7647,

20 January 1977) states "Develop the Downtown Core as an Automobile Control Area". The Downtown Transportation Plan (Objective 1, Policies 3 and 4) further discourages the addition of long-term or short-term spaces Downtown (see IV.F., p. 89). Since the project site is within the Downtown Core, a variant of the proposed project could be designed in which no on-site parking would be provided, in accordance with these policies of the Downtown Transportation Plan.

According to the results of the Itel employee questionnaire, failure to provide on-site parking would not reduce the number of employees who would plan to drive to and from work. If no on-site parking were provided, the daily parking deficit attributable to the proposed project would be increased from 900 to 1,160 spaces. This would raise the daily parking deficit due to cumulative Downtown development, including 101 California St., from 6,690 to 6,950 spaces. The 101 California St. demand would comprise 20% (rather than 17% with 260 on-site spaces) of the cumulative demand. Project-generated traffic would increase the demand on existing Downtown and south-of-Market-St. parking facilities, including short-term spaces. Drivers would be expected to park at more distant locations and then walk or take public transit to and from the site. According to Policy 4 (Objective 1) "It is desirable to attract as many work related trips as possible from automobiles to other more efficient and less environmentally disruptive forms of transportation. It is not sufficient that those travelling to work drive their automobiles from home to peripheral parking areas and then take transit or walk to places of employment."

It is also a policy of the revised Downtown Transportation Plan (Objective 1, Policy 2) to "encourage short-term use of existing parking facilities within and adjacent to the Downtown Core by converting all-day commuter parking to short-term parking in areas of high demand". 260 spaces could be built as proposed and more than 20% to 25% of the spaces allocated for short-term uses. Short-term parkers would be more likely to enter and leave the site at non-peak periods. Because the demand for long-term spaces is expected to exceed the Downtown supply, some of the short-term spaces would be used by all-day parkers. If the short-term parking were inexpensive for all-day use

as compared to other available parking, a greater proportion of the spaces would be expected to be used by all-day parkers.

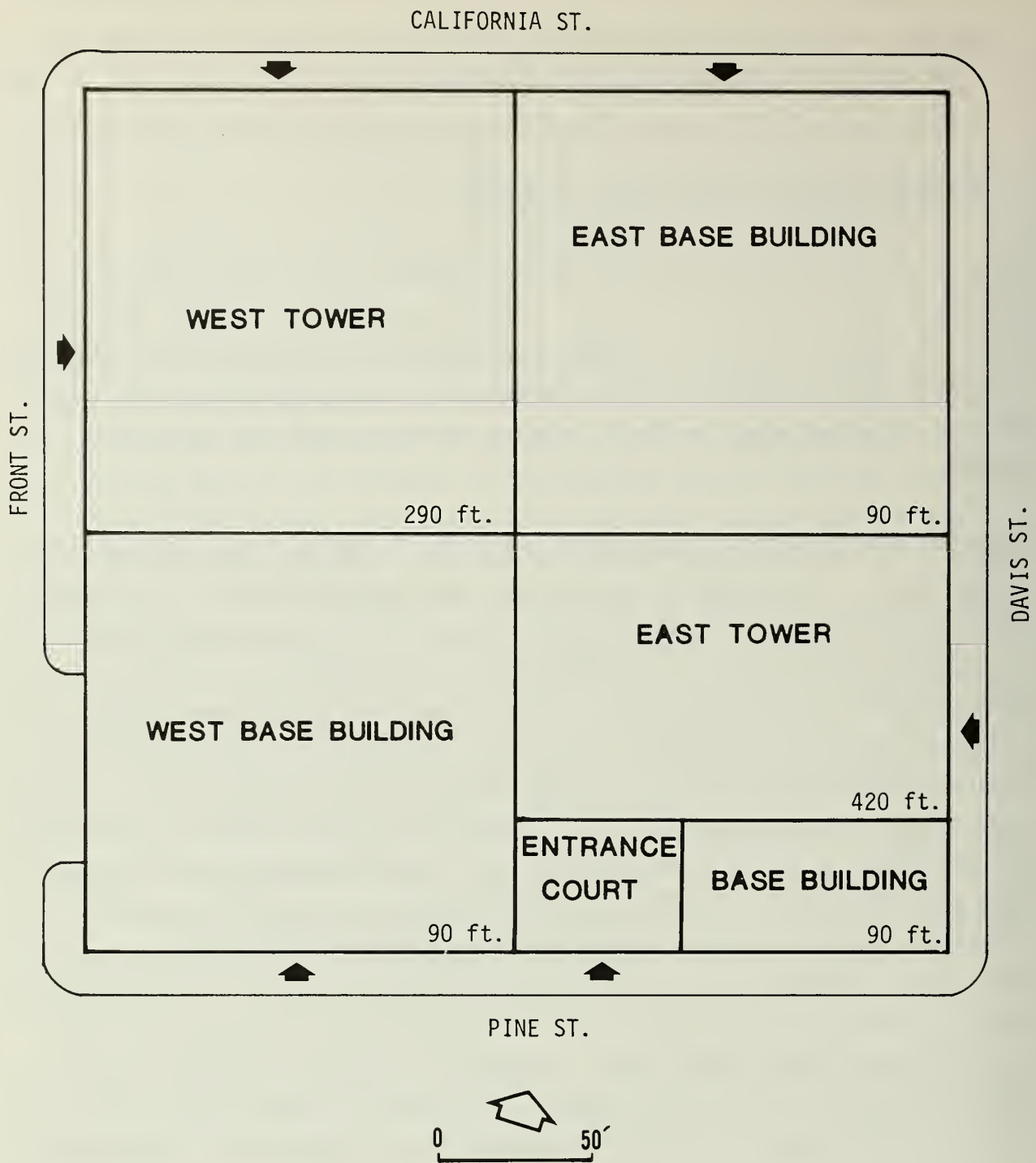
E. MAXIMUM COVERAGE ALTERNATIVE - NO PLAZA

The site could be developed under the City Planning Code with 2 or more buildings, and no plaza on the block. Such an alternative design, requiring no Conditional Use permit, is shown in Figure 49. It consists of 2 buildings, each covering half the block. The 7-story base structures of both the east and west buildings would be 90-ft. high to harmonize with the scale of the streets.

The western building tower, measuring 137.5 ft. by 140 ft., would front on California St. The height of the 21-story tower would be 290 ft. The western building would contain 529,000 gross sq. ft. of floor area; 491,000 gross sq. ft. would be offices and about 38,000 gross sq. ft. would be retail and commercial uses on the first floor. The 32-story, 490-ft. eastern tower, with a width of 90 ft. and a length of 137.5 ft., would front on Davis St. The eastern structure would contain 559,000 gross sq. ft. of floor space. Offices would occupy about 523,000 gross sq. ft. and first-floor retail and commercial uses would occupy about 36,000 gross sq. ft. The 2 structures would contain about 218,000 gross sq. ft. (17%) of office space less than the proposed project, but would have about 6,000 sq. ft. (21%) more retail and commercial space on the ground floor. A skylight-covered entrance court to the Davis St. tower would be provided on Pine St. Although neither tower would be as tall as the tower of the proposed project, views from adjacent buildings would be blocked to a greater extent as 1 tower would be on California St. and the 2 towers would block views along the entire diagonal dimension of the block.

An arcade around both base buildings would provide shelter for pedestrians. Other amenities, such as a shopping galleria on the first floor, or a rooftop observation deck or restaurant atop the seventh floor of the eastern building near Market St., could be incorporated into the design.

The 290-ft. tower at the California and Front St. intersection would be expected to produce severe wind effects along California and Front Sts. The east tower would be nearly opposite the Mutual Benefit Life Building, and



LEGEND


-  BUILDING ENTRANCE
- 00 FT. HEIGHT OF BUILDING

FIGURE 49 MAXIMUM COVERAGE
ALTERNATIVE -SITE
PLAN

strong wind acceleration along Davis St. would be anticipated under northwest wind conditions. These winds would probably adversely affect the Mutual Benefit Life plaza and the Davis St. arcade of the eastern building on the site./1/ The Davis St. tower would cast shadows on the Mutual Benefit Life plaza in the afternoon at all seasons of the year. It would also shadow the Two Embarcadero Center podium level at midday in the winter. The California St. tower would increase the extent of shadowing effects.

Approximately 130,000 gallons of water, 13% less than the proposed project, would be consumed on the site each day and a similar amount of wastewater discharged into the sewer system. About 5.5 tons of solid waste, 15% less than the proposed project, would be produced daily.

Based on a combined fair market value of \$74.9 million, the two buildings would have an assessed value of \$18.8 million, increasing the tax base by \$13.0 million. The estimated composite property tax revenue to the City and County of \$480,000 to \$602,000 per year (about 22% less than the proposed project) would represent a net annual increase over existing development of \$460,000 to \$648,000. Approximately 3,000 people would be employed on the site.

The number of automobile trips generated under this alternative would be about 11% fewer than those generated by the project. Transit trips would be about 7% fewer. Impacts of travel generated by the buildings on levels of service at intersections, transit agencies, and pedestrian levels of service on sidewalks surrounding the block would be similar to those described in the Transportation section (IV.F, p. 87). The reduction in travel would result in an increase in the level of air pollutant emissions of about 11% less than the proposed project.

F. INITIATIVE-CONFORMING ALTERNATIVE

Development which would conform with the proposed Initiative to Limit the Height and Floor Area Ratios of Buildings in Downtown San Francisco could be built on the site. The proposed Initiative would limit the height of

buildings in the C-3-0 District to 260 ft. and the Basic Floor Area Ratio to 8:1, excluding bonuses for preservation of a designated landmark or the construction of housing on the site. The maximum gross floor area which could be developed, without bonuses, would be 605,000 sq. ft.

For purposes of comparison, an alternative composed of provisions of the Initiative will be discussed. A 260-ft. high, 20-story, square building with a diagonal measurement of 195 ft. and a length of 137 ft., would be built at the corner of Pine and Front Sts. A stepped, L-shaped building would be built on California and Davis Sts. (see Figure 50). The lowest steps at the Front/California St. and Davis/Pine St. corners would be 4 stories; the mid-block steps would be 7 stories, and the L-shaped step at the corner would be 10 stories or 130 feet in height (see Figure 51, p. 160). A central walkway would extend diagonally across the site from California and Front Sts. to Davis and Pine Sts. at Market St. This would provide pedestrian amenities, a direct route to the Embarcadero Station of the Market St. subway and added frontage for retail uses. The tower would have the least effect on views of any of the alternatives as it would be lower in height and would have less bulk.

The ground floors would be devoted to retail and commercial uses, while the upper floors would be offices. The total gross floor area of 605,000 sq. ft. would be 701,000 sq. ft. less than the proposed project. Gross office space would decrease by 675,000 sq. ft. to 558,000 sq. ft. Gross retail and commercial space on the ground floor would total 47,000 sq. ft., or about two-thirds that included in the proposed project. The garage would accommodate about 120 cars.

This two-building design would have little effect on westerly winds, as the 20-story tower would be sheltered by the existing taller buildings across Front St. The building would present a flat face to northwesterly winds and would accelerate winds at ground level. The 4- and 7-story steps of the low-rise buildings upwind of the tower would serve to amplify this effect, making the interior walkway quite windy. This problem could be mitigated by placing the stepped building on Front and California Sts. Off-site winds

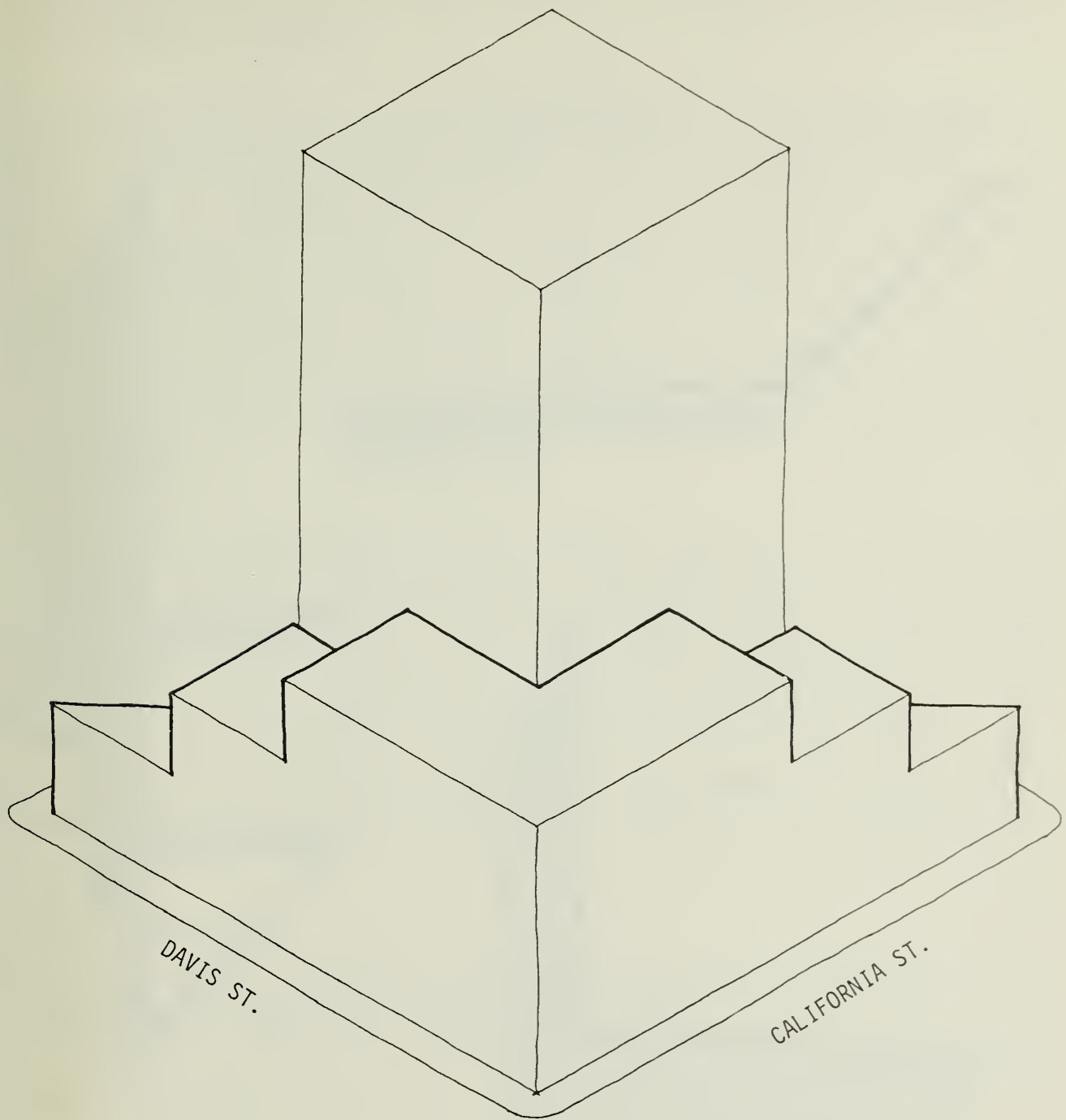


FIGURE 50 INITIATIVE-CONFORMING
ALTERNATIVE - ISOMETRIC

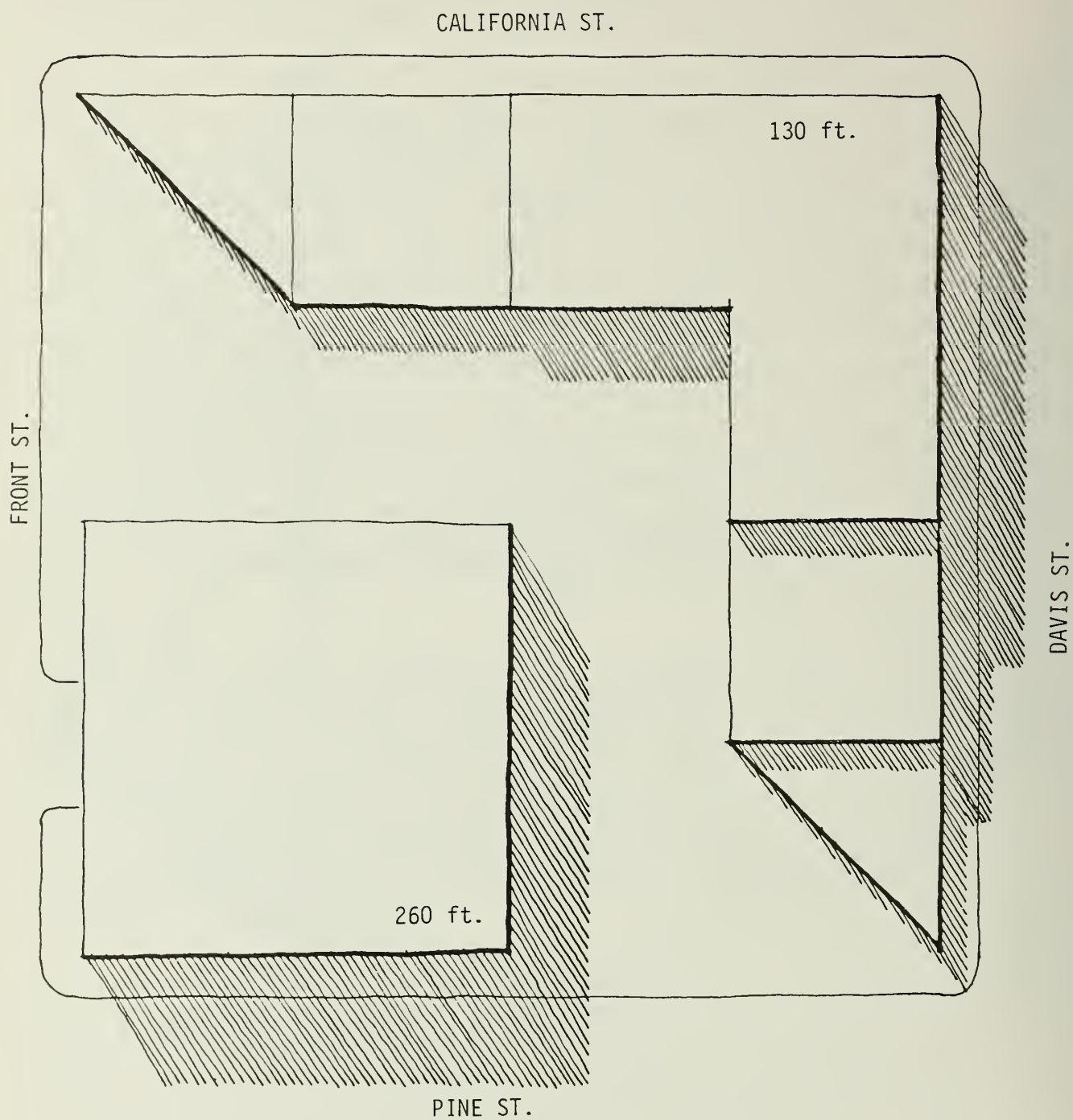


FIGURE 51 INITIATIVE-CONFORMING
ALTERNATIVE-SITE PLAN

would be less affected by this alternative than by the project as proposed./1/ The central walkway would be in shadow most of the day during most seasons of the year.

The domestic water, sewer service, and solid waste disposal requirements of this alternative would be less than half those of the proposed project. Approximately 1,700 employees would work in the buildings. It is estimated that the fair market value of the buildings would be \$41.1 million, and the assessed value \$10.3 million, with a net addition to the tax base of \$7.4 million. The composite property tax revenue to the City and County is expected to be \$260,000 to \$330,000, or about 60% of the project property tax revenue, while the net increase over existing total composite property tax revenues would be about 69% lower than the project, or approximately \$270,000 to \$370,000.

This alternative would generate about 51% fewer automobile trips and 48% fewer transit trips than the proposed project. The Level of Service at the intersection of Market and Davis Sts. would remain at Level C rather than drop to a borderline Level of C/D as it would with the proposed project. The level of operation on Beale St., under cumulative development conditions, would remain at Level of Service D rather than drop to Level E. Pedestrian Levels of Service on sidewalks surrounding the site would remain at Level A. The increase in air pollutants generated by the structure would be lessened by 51%.

NOTE - Alternatives

/1/ D. Ballanti, meteorologist, Environmental Impact Planning Corporation, letter communication, 6 April 1979. This letter is available at the Department of City Planning, Office of Environmental Review.

TABLE 23: COMPARATIVE DESCRIPTIONS OF THE PROJECT AND ALTERNATIVES

	Proposed Project	A. No Project	B. Three Setbacks	C. Plaza On South	D. Code-Conforming Variants			E. Maximum Coverage	F. Initiative-Conforming
					1. Flat-Sided Octagon	2. Faceted Octagon	3. Square Tower		
Total Gross Floor Area-Above Grade (sq.ft.)									
- Office	1,305,800	192,000	1,296,800	1,305,800	1,268,200	1,191,900	1,059,600	1,088,300	605,000
- Commercial	1,233,100		1,224,100	1,233,100	1,196,000	1,120,700	989,900	1,014,700	557,700
- Retail	30,900*		30,900*	30,900*	30,900*	30,900*	30,900*	36,800	23,600
- Lobby	28,800		28,800	28,800	28,800	28,800	28,800	36,800	23,700
	13,000		13,000	13,000	12,500	11,500	10,000	2,000 courtyard	unspecified
Public Open Space (sq.ft.)									
	24,800	None	24,800	24,800	25,300	26,300	27,800	None	29,400
Increase (Decrease) from Project									
- Gross sq. ft.	NA	(1,113,800)	(9,000)	0	(37,600)	(113,900)	(246,200)	(217,500)	(700,800)
- %		(85%)	(1%)	0	(3%)	(9%)	(19%)	(17%)	(54%)
Net Floor Area (sq.ft.)									
- Office	1,153,900	173,000	1,145,600	1,153,900	1,124,300	1,053,400	930,500	953,000	524,000
- Commercial	29,500		29,500	29,500	29,500	29,500	29,500	25,750	16,000
- Retail	23,500		23,500	23,500	23,500	23,500	23,500	25,750	16,000
Planning Code Dimensions									
- Height (ft.)	600	NA	600	600	600	600	600	West East Square L-shaped	
- Diagonal (ft.)	190		190	190	190	184	200	290 420	260 130
- Length (ft.)	190		190	190	170	170	142	200 165	192 NA
								140 137	137 NA
Code Conformity									
	Needs CU exceeds length	NA	Needs CU exceeds length	Needs CU exceeds length	Conforms	Conforms	Conforms	Conforms	Conforms to Code and Initiative
No. of Stories	7		7	7	7	7	7	7	NA
- Base Building	48	NA	48	48	48	48	48	21 32	NA 20
- Tower (Total)									10
Setbacks on tower	2 setbacks floors 40 & 45		3 setbacks floors 37, 42 & 46	2 setbacks floors 40 & 45	None	None	None	None	NA
No. of Parking Spaces	260	90	258	260	253	237	211	217	120
Fair Market Value (million)									
	\$97.4	\$11.6	\$97.4	\$97.4	\$95.4	\$90.3	\$80.0	\$74.9	\$41.1
Average Annual Rental per sq. ft.	\$16.50	6.00	\$16.50	\$16.50	\$16.50	\$16.50	\$16.50	\$15.00	\$15.00
Estimated Employment	3,700	100	3,700	3,700	3,600	3,400	3,000	3,000	1,700
*Commercial/office space on second floor									

TABLE 24 : COMPARATIVE IMPACT SUMMARY

	PROPOSED PROJECT	A. NO PROJECT	B. THREE SETBACKS	C. PLAZA ON SOUTH
LAND USE & ZONING	Would generally comply with Comprehensive Plan and Planning Code requirements; would exceed maximum permitted length, requiring Conditional Use permit.	No effect.	Same as proposed Project.	Same as Proposed Project.
URBAN DESIGN - <u>Architectural Resource Removal</u>	Would require demolition of 64 Pine St., rated "1" by the 1976 Architectural Inventory; 2 Pine St., rated "B" in the Heritage Survey; and 5 other buildings rated "C" in that survey.	No demolition; no new construction.	Same as Proposed Project.	Same as Proposed Project.
- <u>View Protection</u>	Site is adjacent to, but outside, the Pine St. view corridor; Project would interrupt some private views of the Bay from some buildings to the west of site.	View blockage would be negligible.	View blockage would be slightly less than proposed project due to the additional setback at upper tower levels.	Same as Proposed Project.
- <u>Building Height and Bulk</u>	The tower would be of sufficient height to contribute to the visual identification of the Downtown business district, but would be larger in scale than neighboring older development.	Building heights would be comparable in scale to neighboring, older development of smaller scale than neighboring recent highrise development and of insufficient height to contribute to the visual identification of the Downtown business district.	Same as Proposed Project.	Same as Proposed Project.
- <u>Pedestrian Amenities and Interest</u>	The project would provide an outdoor plaza which would occupy the northern portion of the site, visually connecting California St. with Market St.; the proposed plaza would be at least partially shaded during most daylight hours at most times of year; it would reinforce the quasi-plaza which now exists across California St.,	The site would continue to be occupied by older structures with mixed retail and vacant frontages, and vacant parcels; the site would afford little pedestrian interest and no public open space.	Same as Proposed Project.	Same as Proposed Project, except proposed plaza would occupy southern portion of site where it would have greater exposure to sunlight, especially during midday hours, and would spatially relate to the Mutual Benefit Life Plaza and Market St.

D. CODE-CONFORMING VARIANTS			E. MAXIMUM COVERAGE	F. INITIATIVE CONFORMING
1. FLAT-SIDED OCTAGON	2. FACETED OCTAGON	3. SQUARE TOWER		
Would comply with zoning, FAR and height and bulk limit; no Conditional Use permit required.	Same as Alternative D.1.	Same as Alternative D.1.	Same as Alternative D.1.	Would comply with zoning, FAR and height and bulk limits; would also comply with proposed 260-ft. Height Limit Initiative.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.
View blockage would be slightly less than proposed project due to reduced tower length.	Same as Alternative D.1, except view blockage would be slightly less due to reduced tower diagonal.	Aproximately same as Alternative D.1, except view blockage would be slightly less due to reduced tower length; tower would be wider than the Proposed Project when viewed across the diagonal, but narrower when viewed across the side (from the northwest or southwest).	Similar to Proposed Project, except view blockage would be less from the upper levels of nearby buildings due to reduced tower heights; views from lower levels would be more blocked, especially from the southwest and northeast, because the 2 towers would extend diagonally across the block.	Same as Proposed Project, except view blockage would be less due to reduced tower height.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Reduced tower heights would contribute less to visual identification of Downtown business district than would Proposed Project; would be closer in scale to neighboring older development.	Reduced tower height would contribute little to visual identification of Downtown business district; would be closer in scale to neighboring older development than would Proposed Project;.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project, except no plaza would be provided; pedestrian amenity would be provided by the arcade surrounding the base building, but spatial relationship to surroundings would be reduced.	Same as Proposed Project, except plaza area would be reduced; plaza would run diagonally through central portion of site, would not have planters, and would not reinforce spatial relationships with neighboring plazas, quasi-plazas, or Market St.; southern portion of plaza

TABLE 24: COMPARATIVE IMPACT SUMMARY (Continued)

	PROPOSED PROJECT	A. NO PROJECT	B. THREE SETBACKS	C. PLAZA ON SOUTH
	<p>but would bear little spatial relationship to the neighboring Mutual Benefit Life plaza or Market St.; it would be furnished with landscaped planters; street and plaza frontages, except where devoted to entranceways or the building lobby, would be occupied by retail shops, restaurants and similar uses; the base structure for the tower would help provide a transition in scale from the tower to neighboring older structures.</p>			
-Architectural Treatment	<p>The cylindrical tower shape would represent a departure in style and character from both old and new development in the vicinity of the site; the tower surfaces would be articulated and textured by the saw-tooth configuration of glass and natural stone; the natural stone exterior would be continued to the base structure and would be similar to that of neighboring older structures; the base structure would have recessed windows, which would provide a shadowed, textured effect, but would have little other surface articulation; the 2 setbacks at the upper levels of the tower would help reduce the actual and apparent bulk of the tower, visually terminate the structure and add visual interest to the top of the tower.</p>	<p>The present older structures would continue to occupy the site, and would probably continue to deteriorate, unless renovation were begun.</p>	<p>Same as Proposed Project, except the additional setback further down the tower and the narrowing of the widths of the flat sides of the tower at the two upper setback levels would contribute to visual interest, apparent tapering, visual termination at top of structure, and reduced bulk.</p>	<p>Same as Proposed Project.</p>
-Safety	<p>Security lighting would be installed on the plaza. The plaza would be generally visible from street frontages; pedestrian circulation would be separate from vehicular circulation.</p>	<p>No security lighting; portions of the site would not be visible from street frontages; no interior pedestrian circulation.</p>	<p>Same as Proposed Project.</p>	<p>Same as Proposed Project.</p>

D. CODE-CONFORMING VARIANTS			E. MAXIMUM COVERAGE	F. INITIATIVE CONFORMING
1. FLAT-SIDED OCTAGON	2. FACETED OCTAGON	3. SQUARE TOWER		
<p>Same as Proposed Project, except the shape of the tower would be a octagon with long, flat sides and rounded, sawtooth areas on the shorter sides; there would be no setbacks at upper levels; the tower would therefore have less vertical articulation, greater actual and apparent bulk at its upper levels, and less articulation of its top.</p> <p>Same as Proposed Project.</p>	<p>Same as Alternative D.1, except greater widths of sawtooth areas would provide greater vertical articulation; reduced diameter and apparent bulk similar to Proposed Project.</p> <p>Same as Proposed Project.</p>	<p>The square tower shape would be less distinctive than that of the Proposed Project, and similar to that of most neighboring development; tower surfaces would not have sawtooth facets or other pronounced vertical articulations; the actual and apparent bulk of the tower would be uniform for its entire height and would be less than the bulk of the proposed tower, due to the reduced length of its maximum exterior dimension; the top of the structure would not be enhanced by upper level setbacks.</p> <p>Same as Proposed Project.</p>	<p>Same as Alternative D.3, except there would be 2 towers instead of 1, and tower heights would be lower.</p> <p>Same as Proposed Project, except security lighting would be reduced as there would be no plaza.</p>	<p>would have greater exposure to sunlight in the summer than would proposed plaza.</p> <p>Same as Alternative D.3, except the base structure would be detached from the freestanding tower and the tower height would be lower.</p> <p>Same as Proposed Project, except portions of the interior plaza would not be visible from street frontages.</p>

TABLE 24 : COMPARATIVE IMPACT SUMMARY (Continued)

	PROPOSED PROJECT	A. NO PROJECT	B. THREE SETBACKS	C. PLAZA ON SOUTH
-Project Visibility (Issues of tower appearance, shape, and bulk are discussed above)	Would be comparable in height to several downtown highrises which have been built or are under construction (such as One and Four Embarcadero Center and 444 Market St.); profile would be visible on the City skyline as seen from many higher elevations in the City and surrounding areas and from major approaches to the City including the Golden Gate and Bay Bridges and freeways to the south	Existing buildings on the site range from 4 to 9 stories; they would be generally lower in height than surrounding development; the profile of the on-site structures would generally not be visible from distant vantage points in the City and surrounding areas.	Same as Proposed Project.	Same as Proposed Project.
-Light and Shadow Effects	Plaza would be shaded by the tower of Mutual Benefit Life most of the day most of the year; Two Embarcadero Center podium level shaded at midday during winter.	Little or no effect on public open spaces at midday.	Same as Proposed Project.	Plaza would be sunny on summer mornings and at midday. Two Embarcadero Center Podium Level shaded at midday in winter, spring and fall.
-Wind Effects	No increase in winds on sidewalks on site; somewhat increased northwest winds on Davis St. near tower; low to moderate winds on project plaza; somewhat increased northwest winds on Mutual Benefit Life plaza, reduced winds at corner of Davis and Market Sts.	Little or no change in effect; no new construction.	Same as Proposed Project.	West winds would be reduced at the on-site plaza and Mutual Benefit Life plaza; west and northwest winds would increase on California and Davis Sts., especially between the tower and Mutual Benefit Life; northwest winds could increase at the Mutual Benefit Life plaza.
CULTURAL AND HISTORIC ASPECTS	Little expected effect; however, if artifacts were encountered, construction would be stopped and appropriate measures taken.	Little or no effect; no new construction.	Same as Proposed Project.	Same as Proposed Project.
COMMUNITY SERVICES AND UTILITIES	Slight net increase in required services due to increase in scale of development on project site; all services have indicated available capacity, equipment and staff to meet anticipated Project demands.	No effect.	Service demands would be about the same as the Proposed Project.	Same as Proposed Project.

D. CODE-CONFORMING VARIANTS			E. MAXIMUM COVERAGE	F. INITIATIVE CONFORMING
1. FLAT-SIDED OCTAGON	2. FACETED OCTAGON	3. SQUARE TOWER		
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	The 420-ft. Davis St. tower would be comparable to or lower than the Mutual Benefit Life building; portions of the edges and top of the tower would be visible from a few elevated points in the City and surrounding areas, the visibility of the 290-ft. tower on California St. would be similar to that of the 260-ft. tower described under Alternative F.	The 260-ft. towers and 130-ft. building would be lower in height than most recent neighboring highrise developments; the profile of the towers would be generally inconspicuous or not visible at all from distant vantage points in the City and surrounding areas, including the Golden Gate and Bay Bridges, and freeways to the south.
Same as Proposed Project.	Same as Proposed Project.	Similar to Proposed Project; shadow of tower narrower at midday.	Davis St. tower would shade the Two Embarcadero Center podium level at midday during winter; California St. tower would increase extent of shadow effects.	The central walkway would be shaded most times of the day most of the year.
Same as Proposed Project.	Same as Proposed Project.	Northwest winds would increase in the Mutual Benefit Life plaza; on-site plaza winds would be similar to the Proposed Project.	Severe wind effects on California and Front Sts., strong winds between Davis St. tower and Mutual Benefit Life, extending to Mutual Benefit Life plaza and arcade.	High west winds on central walkway.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.
Service demands would be about the same as the Proposed Project.	Service demands would be about 7% to 8% less than the Proposed Project; effects on service capacities would be the same.	Service demands would be about 15% to 20% less than the Proposed Project; effects on service capacities would be about the same.	Service demands would be about 13% to 15% less than the Proposed Project; effects on service capacities would be about the same.	Service demands would be about half that of Proposed Project; effects on service capacities would be about the same.

TABLE 24: COMPARATIVE IMPACT SUMMARY (Continued)

	PROPOSED PROJECT	A. NO PROJECT	B. THREE SETBACKS	C. PLAZA ON SOUTH
ECONOMICS	The net increase over existing total composite property tax revenues would be between \$830,000 and \$1,100,000 (1978 dollars).	Existing annual composite revenues are about \$146,000.	About the same as Proposed Project.	Same as Proposed Project.
RELOCATION	About 30 firms employing an estimated 100 people would be displaced from the site.	No effect.	Same as Proposed Project.	Same as Proposed Project.
TRANSPORTATION, CIRCULATION AND PARKING -Construction	Traffic on Davis and California Sts. would be disrupted intermittently by trucks leaving and entering the site.	No effect; no new construction.	Same as Proposed Project.	Traffic on Pine and Davis Sts. would be disrupted intermittently by trucks leaving and entering the site.
-Operation Traffic (see Table 24, p. for travel demand)	All intersections shown in Table 12, p. 87, would operate at Level of Service C at peak hour, except at Market and Davis Sts. which would be C/D; potential for vehicle-pedestrian conflicts would increase; with cumulative downtown development, project-generated traffic would cause the Level of Service on Beale St. to decrease from D to E.	Little or no effect.	Same as Proposed Project.	Same as Proposed Project.
-Parking	Proposed 260-car garage would increase the number of parking spaces on the site by 170 spaces; the estimated Project-related daily parking demand would be 1,160 spaces, leaving a deficit of 900 Project-related spaces.	The existing 90 off-street parking spaces would be retained.	Similar to Proposed Project.	Same as Proposed Project.
-Pedestrians	Pedestrians using the sidewalks surrounding the site would increase; the Level of Service at peak hour would remain at A; plaza would provide shortened walking distances.	No effect.	Same as Proposed Project.	Same as Proposed Project.

D. CODE-CONFORMING VARIANTS			E. MAXIMUM COVERAGE	F. INITIATIVE CONFORMING
1. FLAT-SIDED OCTAGON	2. FACETED OCTAGON	3. SQUARE TOWER		
About the same as Proposed Project.	The net increase over existing total composite property tax revenues would be between \$760,000 and \$986,000.	The net increase over existing total composite property tax revenues would be between \$650,000 and \$850,000.	The net increase over existing total composite property tax revenues would be between \$460,000 and \$648,000.	The net increase over total composite property tax revenues would be between \$270,000 and \$370,000.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Traffic would be disrupted intermittently by trucks entering and leaving the site; area for loading and unloading of trucks on-site limited.	Traffic would be disrupted intermittently by trucks entering and leaving the site.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project except cumulative impact would leave Beale St. at D.
250-car garage would increase the number of spaces on the site by 160; the estimated building-related parking demand would be about 1,130 spaces, leaving a deficit of about 870 spaces.	240-space garage, would increase the number of spaces on the site by 150; the estimated building-related parking demand would be about 1,060 spaces, leaving a deficit of about 820 spaces.	210-space garage would increase the number of spaces on the site by 110; the estimated building-related parking demand would be about 940 spaces, leaving a deficit of about 730 spaces.	220-space garage would increase the number of spaces on the site by 130; the estimated building-related parking demand would be about 1,030 spaces, leaving a deficit of about 810 spaces.	120-space garage would increase the number of spaces on the site by 30; the estimated building-related parking demand would be about 530 spaces, leaving a deficit of about 400 spaces.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Similar to Proposed Project, no walking distances would be shortened.	Same as Proposed Project.

TABLE 24 : COMPARATIVE IMPACT SUMMARY (Continued)

	PROPOSED PROJECT	A. NO PROJECT	B. THREE SETBACKS	C. PLAZA ON SOUTH
-Transit (see Table 24, p. for travel demand)	The project-generated increases would not statistically lessen the level of operation of the various transit agencies serving the site (see Table 13, p.); project-generated increases would lengthen peak-of-the-peak conditions experienced on Muni.	No effect.	Similar to Proposed Project.	Same as Proposed Project.
AIR QUALITY -Construction	2-1/2 year construction period would result in increased dust and construction vehicle and equipment emissions. Particulate concentrations would exceed 24-hour State standard. Emissions of other pollutants would probably not exceed standards.	Little or no effect; no new construction.	Same as Proposed Project.	Same as Proposed Project.
-Operation	Project-generated traffic emissions would contribute to local and regional accumulations of carbon monoxide, hydrocarbons, nitrogen oxides, particulates and sulfur oxides during inversions.	No change.	Similar to Proposed Project, traffic-generated emissions would be about 1% less.	Same as Proposed Project.
NOISE	During the 13-month period of steel erection construction noise would annoy pedestrians and occupants of nearby buildings; piledriving would make speech difficult inside the buildings across Pine St. which uses open windows for ventilation. No noticeable noise effects during operation.	No effect; no new construction.	Same as Proposed Project.	Similar to Proposed Project, except that piledriving activity would be further from the Pine St. buildings.
ENERGY -Construction	Direct energy consumption during project construction would be about 1.65 million kilowatt hours of electricity and 200,000 gallons of vehicle fuel (about 51 billion BTU-at source).	No effect; no new construction.	Similar to Proposed Project.	Same as Proposed Project.

D. CODE-CONFORMING VARIANTS			E. MAXIMUM COVERAGE	F. INITIATIVE CONFORMING
1. FLAT-SIDED OCTAGON	2. FACETED OCTAGON	3. SQUARE TOWER		
Similar to Proposed Project.	Similar to Proposed Project.	Similar to Proposed Project.	Similar to Proposed Project.	Similar to Proposed Project.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project, but construction period would be reduced.
Similar to Proposed Project, traffic-generated emissions would be about 2% less.	Similar to Proposed Project; traffic-generated emissions would be about 8% less.	Similar to Proposed Project, traffic-generated emissions would be about 19% less.	Similar to Proposed Project; traffic-generated emissions would be about 11% less.	Similar to Proposed Project, traffic-generated emissions would be about 51% less.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Similar to Proposed Project, except construction period would be shorter and less piledriving would be required.
Similar to Proposed Project.	Similar to Proposed Project.	Less than the Proposed Project, because of less construction.	Less than the Proposed Project, because of less construction.	Less than the Proposed Project, because of less construction

TABLE 24 : COMPARATIVE IMPACT SUMMARY (Continued)

	PROPOSED PROJECT	A. NO PROJECT	B. THREE SETBACKS	C. PLAZA ON SOUTH
<u>-Operation</u>	Project would use about 17 million kilowatt hours of electricity per year (1.2 kwh sq. ft. per month) and about 0.8 million cu. ft. of natural gas per year (2.1 BTU per sq. ft. per day); this would total about 170 billion BTU-at source-per year. Annual vehicular fuel consumption attributable to the project would be about 100 billion BTU-at source.	Little or no change from current usage.	Similar to Proposed Project (within 1% to 2% per sq. ft.).	Similar to Proposed Project (within 1% to 2% per sq. ft.).
GEOLOGY AND HYDROLOGY	Site would be excavated to an average depth of 23 ft. with removal of about 65,000 cu. yds. of earth during 8 months of dewatering, some local subsidence and settlement could occur.	No effect; no new construction.	Same as Proposed Project.	Same as Proposed Project.
SEISMICITY	Strong ground shaking would cause the building to sway, but probably not collapse; exterior panels of glass and stone might fall; glass panels in the lobby might fall.	No change from current conditions unless buildings were to be brought up to Code by renovation.	Same as Proposed Project.	Same as Proposed Project.

D. CODE-CONFORMING VARIANTS			E. MAXIMUM COVERAGE	F. INITIATIVE CONFORMING
1. FLAT-SIDED OCTAGON	2. FACETED OCTAGON	3. SQUARE TOWER		
Similar to Proposed Project (within 1% to 2% per sq. ft.).	Similar to Proposed Project (within 1% to 2% per sq. ft.).	Total consumption less than Proposed Project; about 17% more electricity per sq. ft.; about 12% more natural gas per sq. ft.	Total consumption less than Proposed Project; about 13% more electricity per sq. ft.; about 11% more natural gas per sq. ft.	Total consumption less than Proposed Project; about 33% more electricity per sq. ft.; about 13% more natural gas per sq. ft.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project.	Similar to Proposed Project; less excavation would be expected because less than one-half the number of below-grade parking spaces would be provided.
Same as Proposed Project.	Same as Proposed Project.	Same as Proposed Project, except the exterior would be surfaced with natural stone.	Similar to the Proposed Project, except the exterior would be surfaced with stone; the skylight covering the courtyard might be damaged, causing glass to fall.	Similar to Proposed Project, except there would be no glass-enclosed lobby and the exterior would be surfaced with natural stone.

TABLE 25: COMPARATIVE TRANSPORTATION, PARKING AND AIR QUALITY EFFECTS*

	Proposed Project	B. Three Setbacks	C. Plaza On South	D. Code-Conforming Variants			E. Maximum Coverage	F. Initiative- Conforming
				1. Flat-Sided Octagon	2. Faceted Octagon	3. Square Tower		
Total Travel Demand** % Increase (Decrease)	14,300 NA	14,200 (1%)	14,300 0	14,000 (2%)	13,100 (8%)	11,600 (19%)	13,000 (9%)	7,200 (50%)
- Auto % Increase (Decrease)***	6,860 NA	6,810 (1%)	6,860 0	6,710 (2%)	6,290 (8%)	5,590 (19%)	6,120 (11%)	3,390 (51%)
- Transit % Increase (Decrease)***	7,230 NA	7,180 (1%)	7,230 0	7,080 (2%)	6,610 (9%)	5,830 (19%)	6,740 (7%)	3,730 (48%)
- Muni only % Increase (Decrease)***	710 NA	700 (1%)	710 0	690 (3%)	650 (8%)	570 (20%)	660 (7%)	370 (48%)
Daily Building-Related Parking Demand+ % Increase (Decrease)***	1,160 NA	1,153 (1%)	1,160 0	1,125 (3%)	1,056 (9%)	940 (19%)	1,032 (11%)	519 (51%)
Daily Building-Related Parking Deficit	900	895	900	872	819	729	815	399
Total Air Pollutant Emissions tons/day								
- Carbon Monoxide % Increase (Decrease)***	2.193 NA	2.171 (1%)	2.193 0	2.149 (2%)	2.018 (8%)	1.776 (19%)	1.952 (11%)	1.075 (51%)
- Hydrocarbons % Increase (Decrease)***	0.231 NA	0.229 (1%)	0.231 0	0.226 (2%)	0.213 (8%)	0.187 (19%)	0.206 (11%)	0.113 (51%)
- Nitrogen Oxides % Increase (Decrease)***	0.225 NA	0.223 (1%)	0.225 0	0.221 (2%)	0.207 (8%)	0.182 (19%)	0.200 (11%)	0.110 (51%)

*The No Project Alternative (Alternative A) is not included in this table because there would be no change from existing conditions.

**All transit figures represent 24-hour weekday travel demand generated by the building(s).

***Represents the percent increase or decrease in effect, as compared to the effect generated by the project.

+Parking demand given in number of parking spaces required by users of the building(s).

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APPENDIX A: INVENTORY OF ARCHITECTURALLY SIGNIFICANT BUILDINGS

In 1974, 1975 and 1976, the San Francisco Department of City Planning conducted a parcel by parcel, citywide inventory of architecturally significant buildings. An advisory review committee of architects and architectural historians, including John Beach, Architectural Historian; Michael Corbett, Architectural Historian; John Frisbee, Regional Director, National Trust for Historic Preservation; Mrs. G. Bland Platt, President, San Francisco Landmarks Preservation Advisory Board; James Ream, Architect; Judy Waldhorn, Architectural Historian; Francis Whisler, Architect; Sally Woodbridge, Architectural Historian; William Coburn, Architect; Robert Hersey, Architect; and Al Lanier, Architect; assisted in the final determination of evaluative ratings for the 10,000 buildings which have been entered in an unpublished 60-volume record of the inventory. The buildings have been recorded on color-coded maps which identify locations and relative significance; these are available for public inspection at the Department of City Planning.

The inventory was not an inventory of historic structures. Rather, it was an inventory of buildings that were considered to be architecturally significant from the standpoint of overall design, or particular design features. Contemporary buildings were included as well as some more than 50 years old. Each building was numerically rated as to its overall architectural significance. The ratings ranged from a low of "0" to a high of "5". The buildings were also separately classified by style. Finally, each structure received a summary rating based on the first two codes as well as on its environmental and urban design setting, which also ranged from "0" to "5". Thus each building included in the inventory was coded by its architectural significance, its style, and its overall environmental significance. Buildings receiving a summary rating of "2" or higher were considered to be the best architecture in San Francisco as of 1976.

Inclusion of a building in the inventory does not necessarily require or encourage its preservation. Rather, the urban design purpose is to guide the design of new construction which would affect the setting or visual environment of such buildings so as to minimize the harmful or incompatible effects.

APPENDIX B: SAN FRANCISCO HERITAGE FOUNDATION ARCHITECTURAL AND HISTORICAL SURVEY

The San Francisco Heritage Foundation, through its consultants Charles Hall Page & Associates, has completed a recent, and as yet unpublished, architectural and historical survey of all downtown buildings. Most buildings surveyed were scored according to 4 categories of criteria: Architectural Significance; Historical-Cultural Significance; Environmental Significance and Negative Alterations. Summary ratings from A to D were then assigned to each building on the basis of these scores.

At the project site, 2 Pine St. received a rating of B in this survey. The B rating indicates an "important landmark of National Register Quality . . . eligible for the State Inventory (of Architectural Resources) and possibly City Landmark Status."

64-70 Pine St., 124 Front St., 136 Front St., 140 Front St., and 146-50 Front St. received ratings of C. The C rating indicates "resources which have some merit and strength of identity," which may be considered "background buildings" and "important elements of the urban fabric which support the character and setting of more significant resources." Also at the project site, the buildings at 135-141 California St., 11 California St., and 50 Pine St. received ratings of D, which identifies "buildings of no particular cultural or design merit with little historical significance."

APPENDIX C: BLOCK 263: TENANTS BY BUILDING
Existing Uses, Employment, and Relocation Status

<u>FLOOR</u>	<u>TENANT</u>	<u>TYPE OF BUSINESS USE</u>	<u>ESTIMATED OCCUPIED AREA (net sq. ft.)</u>	<u>ESTIMATED EMPLOYEES</u>	<u>BUILDING HISTORY AND CURRENT RELOCATION STATUS</u>
<u>149 CALIFORNIA BUILDING</u>					
1st	Executive Suite Basement	Restaurant Storage	2,572 2,500	4 -	<u>149 CALIFORNIA BUILDING</u> Current tenants are on 30-day notice leases except for Caboara's Restaurant, which is on a 90-day notice, and the Mayor's Litter Committee, which has a lease expiring 6/30/80 with 30-day notice in the event of sale or demolition. Future relocation plans of current tenants are unknown.
1st	dba Gems & Coins (A. Allen Simmrin)	Jewelry Shop	165	1	
1st	Caboara's Basement	Restaurant Storage	1,300 1,260	2 -	
1st	Mary Jane Gift Shop (Don and Carol Gieb)	Gift Shop	520	1	
1st	Gay Nineties Tie Shop	Men's Clothing Shop	420	2	
208	Local Union #9 (ACA) International Brotherhood of Teamsters	Union Branch	513	2	
209	John A. White	Freight Forwarder	157	1	
210	McCann Shipping Company	Freight Forwarding	165	1	
211-212	Priscilla Mar dba Priscilla's Fashions & gifts	Women's Clothing Shop	319	2	
217	J. L. Dirickx	Export Office	435	2	
220	Executive Suite Office	Office	200	1	

APPENDIX C (cont.): BLOCK 263: TENANTS BY BUILDING
Existing Uses, Employment, and Relocation Status

<u>FLOOR</u>	<u>TENANT</u>	<u>TYPE OF BUSINESS USE</u>	<u>ESTIMATED OCCUPIED AREA (net sq. ft.)</u>	<u>ESTIMATED EMPLOYEES</u>	<u>BUILDING HISTORY AND CURRENT RELOCATION STATUS</u>
<u>149 CALIFORNIA BUILDING</u>					
223	E.M.P. Ocean Freight Forwarding Co.	Freight Forwarding	593	2	
224	California Freie Presse	German Newspaper Press	312	1	
303-320	WAMS, Inc.	Plastic Bag Manufacturing Company	1840	6	
333	Nico Construction	Storage	375	2	
331-332	The Mayor's Litter Committee (San Franciscans for a Cleaner City)	Office	440	1	
407	Automotive Maintenance & Garage Association, Inc.	Office	200	1	
501	Coast Brokerage Co.	Export-Import Office	115	1	
503-507	Robert N. Herbert	Engineering Office	775	3	
510-14	C. L. Peck Contractor	Contractor's Office	963	3	
521	Earth News corp.	News Service	533	2	
	Glober Importers (Basement)	Import Storage	300	1	

APPENDIX C (cont.): BLOCK 263: TENANTS BY BUILDING
Existing Uses, Employment, and Relocation Status

<u>FLOOR</u>	<u>TENANT</u>	<u>TYPE OF BUSINESS USE</u>	<u>ESTIMATED OCCUPIED AREA (net sq. ft.)</u>	<u>ESTIMATED EMPLOYEES</u>	<u>BUILDING HISTORY AND CURRENT RELOCATION STATUS</u>
<u>111 CALIFORNIA BUILDING</u>					
1st	Paul Hersch	Salvage Store	2,000	3	111 CALIFORNIA BUILDING Except for ground-floor tenant, the remaining four floors of the building have been vacant for at least the past ten years. The current tenant, Paul Hersch is on a 30-day-notice lease, and would attempt to relocate within San Francisco
<u>136-140-142 FRONT BUILDING</u>					
1st	Leopard Cafe	Restaurant	8,500	14	136-140-142 FRONT BUILDING Current tenant has occupied the building since 1947. Remaining two floors have been vacant since at least 1975. Current tenant is on 30-day-notice lease and would probably discontinue business operations upon displacement.
<u>122-124 FRONT BUILDING</u>					
1st	Judy's Fashions/ David Moore	Clothing Store	5,000	8	122-124 FRONT BUILDING Building previously occupied by Sugarman Brothers, Salvage Company who have since relocated within San Francisco. Current tenant is on 30-day-notice lease and has occupied the building

APPENDIX C (cont.): BLOCK 263: TENANTS BY BUILDING
Existing Uses, Employment, and Relocation Status

<u>FLOOR</u>	<u>TENANT</u>	<u>TYPE OF BUSINESS USE</u>	<u>ESTIMATED OCCUPIED AREA (net sq. ft.)</u>	<u>ESTIMATED EMPLOYEES</u>	<u>BUILDING HISTORY AND CURRENT RELOCATION STATUS</u>
<u>122-124 FRONT BUILDING (Cont.)</u>					
					since 1972. The current tenant will soon retire and space would be occupied by Paul Hersch Salvage.
<u>64 PINE BUILDING</u>					
1st	Hellmark Imports, Inc. California Flowers	Liquor Store Flower Vendor	8400 Lobby	14 1	Building previously occupied by Rio Dei Mar Foods and Liberty Gold company. Both companies have relocated in San Francisco since 1973. Current tenants are on 30-day-notice leases and future relocation plans are unknown.
<u>6-50 PINE BUILDING</u>					
	S.E. Onorato Garages	Garage	5000	1	Future relocation plans of current tenant is unknown.
<u>2 PINE BUILDING</u>					
1st	Paul Hersch	Salvage Store	8000	13	Previously occupied by Spreckles Sugar which has relocated within San Francisco since 1973. Current tenant, Paul Hersch would attempt to relocate operations within San Francisco.

APPENDIX C (cont.): BLOCK 263: TENANTS BY BUILDING
Existing Uses, Employment, and Relocation Status

FLOOR	TENANT	TYPE OF BUSINESS USE	ESTIMATED OCCUPIED AREA (net sq. ft.)	ESTIMATED EMPLOYEES	BUILDING HISTORY AND CURRENT RELOCATION STATUS
101	CALIFORNIA LOT				101 CALIFORNIA LOT
	Foster & Kleiser	signs	-	-	Bechtel Corporation and Pacific
	Swinerton & Walberg Co.	storage	-	-	Gas and Electric Company once
					occupied the 101 California
					Street building. The building
					was destroyed by fire in 1972
					and subsequently demolished.
TOTALS			55,682	97	

*Factors used to estimate current employment at project site are as follows:

Office: 1 employee per 330 net square feet of space

Retail/Restaurant: 1 employee per 600 net square feet of space

Parking: 1 employee per 170 parking spaces

SOURCE: N. Spencer, Senior Sales Consultant, Coldwell Banker, (current property managers); L. Esteban, Executive Secretary, Continental Insurance Company;
P. Hersh, Owner, Paul Hersh Salvage Stores, 111 California St., 2 Pine St., San Francisco; A. Antracollo, Owner, Leopard Cafe, 136 Front St., San Francisco

APPENDIX D: 1978-79 PROPERTY TAXES LEVIED ON BLOCK 263

TABLE D-1: DISTRIBUTION OF 1978-79 PROPERTY TAXES LEVIED ON BLOCK 263

	1978-79 Tax Rate (dollars per \$100 assessed value)	Revenues (to nearest \$100)	Percent
City and County of San Francisco	3.236	93,500	64
San Francisco Unified School District	1.222	35,300	24
San Francisco Community College District	0.222	6,400	4
Bay Area Air Quality Management District	0.006	200	1
BART	<u>0.374</u>	<u>10,800</u>	<u>7</u>
TOTAL	5.060	146,200	100

*Based on total 1978-79 assessed valuation of \$2,889,300 for ten parcels.

SOURCE: Tax collector, City and County of San Francisco, 1978-1979 Important Tax Information, 1978.

W. Belding, BART Senior Staff Economist (telephone communication, 9 September 1978) estimates that the average deficit per BART trip is \$1.25 per patron. Operating costs less fares and concession income are funded primarily by the 1/2% BART sales tax. The estimated \$15,000 in sales tax revenues generated by the site for BART would cover the annual deficit of about 24 BART commuters. It is unknown how many of the site's present 100 employees are BART commuters.

Table E-1: POST-WAR OFFICE GROWTH IN DOWNTOWN SAN FRANCISCO*

<u>Completed</u>	<u>Period Years</u>	<u>Number</u>	<u>Total Gross Square Feet (millions)</u>	<u>Building Average Square Feet (thousands)</u>	<u>Range Square Feet (thousands)</u>	<u>Annual Average Rate Square Feet (thousands)</u>	<u>Range # of Stories</u>
1945-1949	5	3	0.5	178	100 to 250	107	11 - 14
1950-1959	10	10	2.4	240	138 to 430	240	7 - 25
1960-1969	10	22	10.3	468	119 to 1,771	1,029	10 - 52
1970-1977	8	<u>21</u>	<u>14.1</u>	671	100 to 1,375	1,761	11 - 48
<u>Subtotal</u> <u>Built</u>	--	56	27.3	--	--	--	--
<u>Under Construction**</u> <u>1978-1980</u>	3	9	3.0	420	144 to 728	1,017	15 - 45
<u>Applied For***</u> <u>1981-1982</u>	2	3	2.7	642	500 to 1,750	1,338	10 - 33
<u>To Be Proposed+</u> <u>1982</u>	1	3	3.1	1,046	775 to 1,306	3,136	42 - 48
<u>Subtotal</u> <u>Pending</u>	--	<u>15</u>	<u>8.8</u>	--	--	--	--
<u>TOTAL</u>		75	36.1				

*The Table is based on a telephone communication with C. Gill, Major Project Review, Department of City Planning, 30 November 1978 and on lists compiled by the San Francisco Department of City Planning which are available for public review at the Department of City Planning, Office of Environmental Review.

**Under Construction: 505 Sansome St., 601 Montgomery St., Hibernia Bank (California and Front Sts.), 444 Market St., 180 Montgomery St., 595 Market St., 333 Market St., Howard and Main Sts., and Four Embarcadero Center.

***Proposed: 775 Market St., Federal Reserve and Pacific Gateway.

+Under EIR review: Crocker National Bank headquarters, 101 California St. and One Sansome St. An addendum list is on file, titled "Major Office Buildings To Be Proposed, Last Quarter, 1978." Other Downtown high-rises are in a stage of conceptual planning, but are not yet in OER review, such as the Daon Building, 456 Montgomery St., 301 Howard St and 150 Spear St. Additional low-rise commercial and office space is also proposed: such as, 840,000 sq. ft. in Levi Plaza, and 250,000 sq. ft. in Golden Gateway Commons.

THE ECONOMIC AND FISCAL EFFECTS OF CUMULATIVE OFFICE DEVELOPMENT

Downtown office space growth in San Francisco exceeded new citywide office employment by threefold in the period 1960-1974. Based on past trends, projections from 1974 to 1990 varied by a factor of 3 for new office space (from 10 to 30 million sq. ft. absorption), but by a factor of 2 (from 49,000 to 87,000 more office workers) for increased employment./1/

Cumulatively, the large amount of office space coming on line at one time would increase the citywide office vacancy rate and have the indirect effect of holding office rent increases down. Secondary dislocation effects on older Downtown offices could also occur. As firms upgrade to relatively high-rent spaces vacated in highrises built in the 1960's and early 1970's (such as firms relocating to One and Two Embarcadero Center in space which Intel would vacate) secondary vacancies could occur in the older pre-war buildings. Reduced rents and/or higher vacancy rates in these older buildings could lead to deferred maintenance.

Cumulative office development is generally of net fiscal benefit, but could cause increased capital costs for transportation facilities, both public and private. Transit systems are supported by fares and state and federal subventions derived primarily from state and federal gas taxes. The remaining costs are financed locally by sales taxes which (with fares) are the primary support for BART operating costs, and by property taxes which are the primary support for MUNI and the source of funding for debt service on BART capital costs. It has been suggested that "vehicle congestion is a threshold factor. . . should the 1990 maximum growth level become a reality."/1/ This "threshold factor" would determine the requirement for new capital improvements to transportation systems - such as extension of BART to the Peninsula or a second deck on the Golden Gate Bridge. Until a public determination that this "threshold" has been reached, the "costs" of congestion due to private vehicles would be borne privately in the form of delays, vehicle-related costs, including air pollution.

FOOTNOTE - Appendix E

/1/ San Francisco Planning and Urban Renewal Association, June 1975, Detailed Finding: Impact of Intensive High-rise Development in San Francisco, Final Report.

APPENDIX F: LOCAL STREET AND FREEWAY SYSTEM

The freeways accessible from the project site are the San Francisco-Oakland Bay Bridge (Interstate 80) and the James Lick-Bayshore Freeway (U.S. 101). The Embarcadero Freeway (California 480) provides access to and from the Bay Bridge and James Lick Freeway from the north side of the project site on Clay and Washington Sts. near Davis St. Ramps on Main and Beale Sts. at Mission St. provide direct access to the Bay Bridge and James Lick Freeway south of the site. Additional ramps are located in the vicinity of Harrison and Bryant Sts. approximately one-half mile south of the project site. The Southern-Junipero Serra Freeway (Interstate 280) has ramps at Sixth and Brannan Sts. and an unpaired off-ramp at Fourth and Berry Sts., nearly 1 mile from the site.

The site fronts on 4 local streets and is adjacent to Market St., which is designated as a Major Thoroughfare in the Thoroughfares Plan of the Transportation Element of the Comprehensive Plan. (San Francisco City Planning Commission Resolution 6834, 27 April 1972.). The Plan defines major thoroughfares as crosstown thoroughfares whose primary function is to link districts within the City and to distribute traffic from and to the freeways; these are routes generally of citywide significance and of varying capacity depending on the travel demand for the specific direction and adjacent land uses. Market St. is also designated as a transit arterial street in the Transportation Plan for Downtown and Vicinity, also a part of the Transportation Element of the Comprehensive Plan, and as a transit preferential street in the Transit Preferential Streets Plan of the Transportation Element. A transit arterial is defined as a route of major arterial transit lines. A transit preferential street is one where priority is given to transit vehicles over autos. Market St. carries 5 local electric trolley coach lines on the surface and will serve the Muni Metro light-rail-vehicle lines (LRV) in the subway beginning in 1980. The subway also carries Bay Area Rapid Transit system (BART) lines from the East Bay which terminate in Daly City.

California St. is a 2-way 4-lane street and is a transit preferential street since it carries the California St. cable car route (Muni Line No. 61) from the Robert Frost Plaza at Market St. to Van Ness Ave. on the west side of Nob Hill. Davis St. is 1-way southbound with 3 lanes and connects at Market St. with Beale St. which leads to freeway ramps at Mission St. It also carries the No. 41 Union-Howard electric trolley coach line which serves Cow Hollow, Russian Hill, North Beach and the Mission District. Pine St. is 1-way westbound with 2 moving lanes in its first block off Market St. Front St. is 1-way northbound carrying 1 to 3 lanes of traffic from Fremont St. on the south side of Market St.

APPENDIX G: LEVELS OF SERVICE AND METHODOLOGY USED IN TRAFFIC ANALYSIS

TABLE G-1: TRAFFIC LEVELS OF SERVICE

Level of Service	Description	Volume/Capacity v/c Ratio
A	Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.60
B	Level of Service B is in the zone of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted. The lower limit (lowest speed, highest volume) of this level of service has been associated with service volumes used in the design of rural highways.	0.61-0.70
C	Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained, with service volumes perhaps suitable for urban design practice.	0.71-0.80
D	Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.	0.81-0.90
E	Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds than in level D, with volumes at or near the capacity of the highway. Flow is unstable, and there may be stoppages of momentary duration.	0.90-1.00
F	Level of Service F describes forced flow operation at low speeds, where volumes are below capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of the downstream congestion. In the extreme, both speed and volume can drop to zero.	1.00

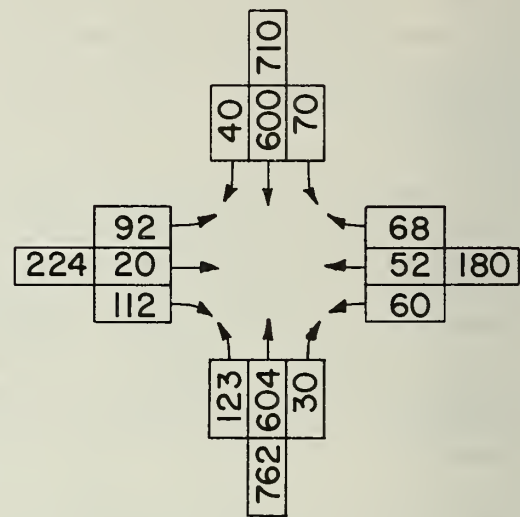
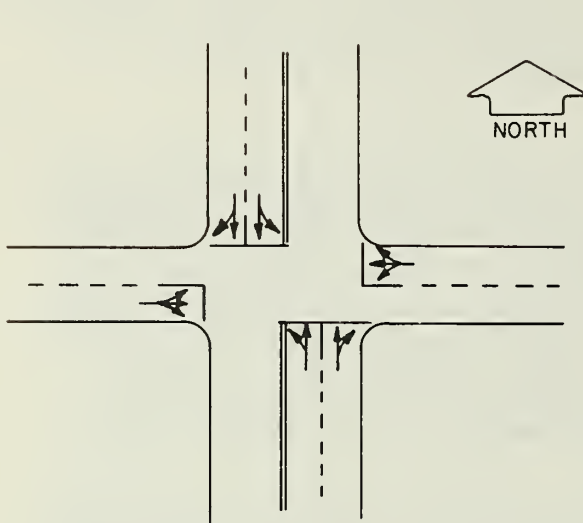
SOURCE: Highway Research Board, Highway Capacity Manual, Special Report No. 87, 1965.

METHODOLOGY USED IN TRAFFIC ANALYSIS

The traffic volume data shown in Table 4, p. 42, is derived from historical data for 1976 and 1977 obtained from the San Francisco Department of Public Works, Bureau of Traffic Engineering, and from machine traffic counts made by TJKM, transportation consultants, on various weekday dates in 1978. Estimates of some 1978 traffic volumes were made by TJKM based on manual intersection count data made by TJKM on 25, 27, and 28 September 1978, and on the historical data for 1976 and 1977.

The capacity analysis of each intersection at which a turning movement count was made used the "critical lane" method. This method of capacity calculation is a summation of maximum conflicting approach lane volumes that gives the capacity of an intersection in vehicles per hour per lane. (This method is explained in detail in an article entitled "Intersection Capacity Measurement Through Critical Movement Summations: a Planning Tool", by McInerney, Henry B. and Stephen G. Peterson, January 1971, Traffic Engineering.) A sample calculation is included in the supporting documentation on file with the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319.

The maximum service volume for Level of Service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified Level of Service. For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio was calculated by dividing the existing volume by the capacity at Level of Service E.



CAPACITY CALCULATIONS - SUM OF CRITICAL LANE VOLUMES

	N-S FLOW		E-W FLOW	
1. APPROACH VOLUMES	<u>710</u>	<u>762</u>	<u>224</u>	<u>180</u>
2. DIVIDE BY NUMBER OF LANES	<u>355</u>	<u>381</u>	<u>224</u>	<u>180</u>
3. OPPOSING LEFT TURNS	<u>128</u>	<u>70</u>	<u>60</u>	<u>92</u>
4. TOTALS 2+3	<u>483</u>	<u>451</u>	<u>284</u>	<u>272</u>
5. CRITICAL VOLUMES (HIGHER OF 4)	<u>483</u> V/L/H		<u>284</u> V/L/H	
6. SUM OF CRITICAL VOLUMES	<u>767</u> V/L/H			
7. VOLUME-TO-CAPACITY RATIO (LINE 6/1500*V/L/H)	<u>0.51</u>			
8. LEVEL OF SERVICE	A			

* Capacity volume of 1500 vehicles per lane per hour (V/L/H) derived from Level of Service C value of 1200 V/L/H used by McInerney and Peterson. Capacity volumes shown in Table 5 are further adjusted for pedestrian influence as per Tables 13 and 20 of the Yerba Buena Center EIR (EE77-220, City and County of San Francisco, 25 April 1978)

TABLE G-2: PEDESTRIAN LEVELS OF SERVICE

Level of Service	Walking Speed Choice	Conflicts	Pedestrian Flow Rates (P/F/M)*	
			One-Way Flow (Commuters)	Two-Way Flow (Shoppers, etc.)
A	Free Selection	None	8	7
B	Some Selection	Minor	8-11	7-9
C	Restricted	High Probability	11-16	9-14
D	Some Reduction	Multiple	16-21	14-19
E	All Reduced	Frequent	21-26	19-23
F	Shuffle Only	Unavoidable	26**	23**

*P/F/M = Pedestrians per foot of sidewalk width per minute.

**At Level F, the (attempted) flow rate degrades to zero at complete breakdown.

SOURCE: Fruin, J. J., 1971, Pedestrian Planning and Design, Metropolitan Association of Urban Designers and Environmental Planners, New York, N.Y.

APPENDIX H: 1978 PEAK HOUR TRANSIT RIDERSHIP AND CAPACITY
(Selected Routes;* Peak Direction Only)

	Riders	Vehicles	Capacity++		% Occupancy		Peak
			Seated	Total	Seated	Total	
San Francisco Muni	13,560	213	10,460	16,670	124	81	p.m.
BART: Transbay	7,600	10**	6,700	10,040	113	76	p.m.
Westbay	5,900	9**	5,540	8,320	106	71	p.m.
A-C Transit	8,590	206	9,890	12,360	87	70	p.m.
SamTrans	610	15	800	980	77	63	p.m.
Southern Pacific RR	4,300	9***	11,000	11,000		39	p.m.
Golden Gate Transit							
Motor Coach	4,480	118	5,310	6,490	84	69	a.m.
Ferry	1,190	3	N.K.	2,075		57	p.m.
Harbor Carriers, Inc.	345	2	N.K.	700		49	p.m.

*Muni: J, K, L, M, N, 5, 6, 7, 8, 31, 38, 38LS, 38X, 41, 45, 61, 71, 72;

SamTrans: 7F, 7B, 5M, 7R; A-C Transit: A, B, BX, C, CH/CB, E, EX, F, FSG/FX, G, H, K, KH, L, LX, N, NX, Q, QX, R/RH, RD/RF/RCV, S, SW, V, W, Y.

**Number of trains: 10 cars on Concord lines; 7 cars on Fremont line.

***Number of trains assuming 10 cars per train to reflect available rolling stock.

+Not known.

++Capacity has been calculated based on the following per vehicle capacities.

	Seated Passengers	Total Seated and Standing Passengers
Muni: Streetcar	55	90
Trolley	51	75
Motor Coach	48	75
Cable Car		60
BART	72	108
A-C Transit	48	60
SamTrans	53	65
Southern Pacific	100/150	100/150
Golden Gate Transit Motor Coach	45	55
Sausalito Ferry		575
Larkspur Ferry		750
Harbor Carriers Tiburon Ferry		350

SOURCE: Field observations were made by TJKM on 25, 27 and 28 September 1978 and 2 and 4 October 1978, and publicly available data was supplied by the following agencies and personnel on the dates indicated:

<u>Agency</u>	<u>Data</u>	<u>Personnel</u>	<u>Date</u>
Muni	Schedule Checks (Various weekdays; 14 March 1977; 24 and 28 March, 12, 17 and 26 April, 10 May, 26 June, 17 and 31 July, 31 August, 14 September 1978)	A. Figone	2 October 1978
BART	Data Acquisition System (Tuesday, 18 April 1978)	W. Belding	16 October 1978
A-C Transit	"Traffic Survey Series A-50", Institute of Transportation Studies (April 1978)		April 1978
SamTrans	Report of Weekly Operation (22 to 29 September 1978)	L. Stuek	12 December 1978
Southern Pacific Railroad	Yearly Account, File Ap-191 (October 1976)	G. Pera	21 July 1977 19 June 1978
Golden Gate Transit	Monthly Reports (July and August 1978)	A. Zahradnik P. Dyson	12 October 1978
Harbor Carriers, Inc.	Daily Reports (Friday, 6 October 1978)	Dispatcher	13 October 1978

APPENDIX I: METHODOLOGY USED IN CUMULATIVE TRANSPORTATION AND PARKING IMPACT ANALYSIS

CUMULATIVE TRAFFIC AND PARKING IMPACT ANALYSIS

The buildings which were subject to the cumulative traffic and parking analyses are in or near the Financial District (see Figure S-1) and are listed below by their Office of Environmental Review EIR file number and name:

EE 74.140	Howard and Main Sts. (Northeast corner)
EE 74.170	Bank of Tokyo of California (California First Bank)
EE 74.224	333 Market St.
EE 77.98	333 Market St. addendum
EE 74.244	Parking Structure, Howard and Steuart Sts.
EE 74.253	444 Market St.
EE 74.322	595 Market St.
EE 75.60	505 Sansome St.
EE 76.162	180 Montgomery St.
EE 76.263	Golden Gateway Center Phase III
EE 76.434	601 Montgomery St. (Negative declaration)
EE 77.220	Yerba Buena Center (Convention Center only)
EE 78.61	Pacific Gateway (Administrative Draft)

As none of the above buildings was in operation in 1976, the base year used for the cumulative analysis was 1976. The 1976 base traffic volumes were expanded to 1981 base traffic volumes by TJKM by an adjusted growth factor of 1.25% per year rather than the 1.8% per year used in the preceding traffic subsections./1/ The latter reflects the historic growth rate in total office space in the Downtown area whereas the cumulative analysis allocates some of the future growth to the specific projects listed above. Information on the amount of traffic generated by each project that would affect the streets in the Financial District was derived from the EIR or special traffic report on each project. The cumulative traffic from the analyzed projects was added to the 1981 base traffic. Finally, the projected traffic volumes generated by the proposed 101 California project were added to the sum of the 1981 base and cumulative traffic volumes. A similar analysis was conducted to determine cumulative parking impacts.

FOOTNOTE - Appendix I

/1/ The 1.8% increase in traffic per year was assumed to be based on the average annual increase in office space which occurred during the San Francisco Department of Public Works Downtown Parking and Traffic Survey period of 1965 to 1970. According to a summary table compiled by the Department of City Planning, the annual average increase was 1.7 million sq. ft. per year. To calculate the new growth factor, the annual average increase in gross sq. ft. of office space, exclusive of the buildings to be considered in the cumulative analysis, was determined. This increase was 1.2 million sq. ft. per year, resulting in an adjusted growth factor of 1.25%.

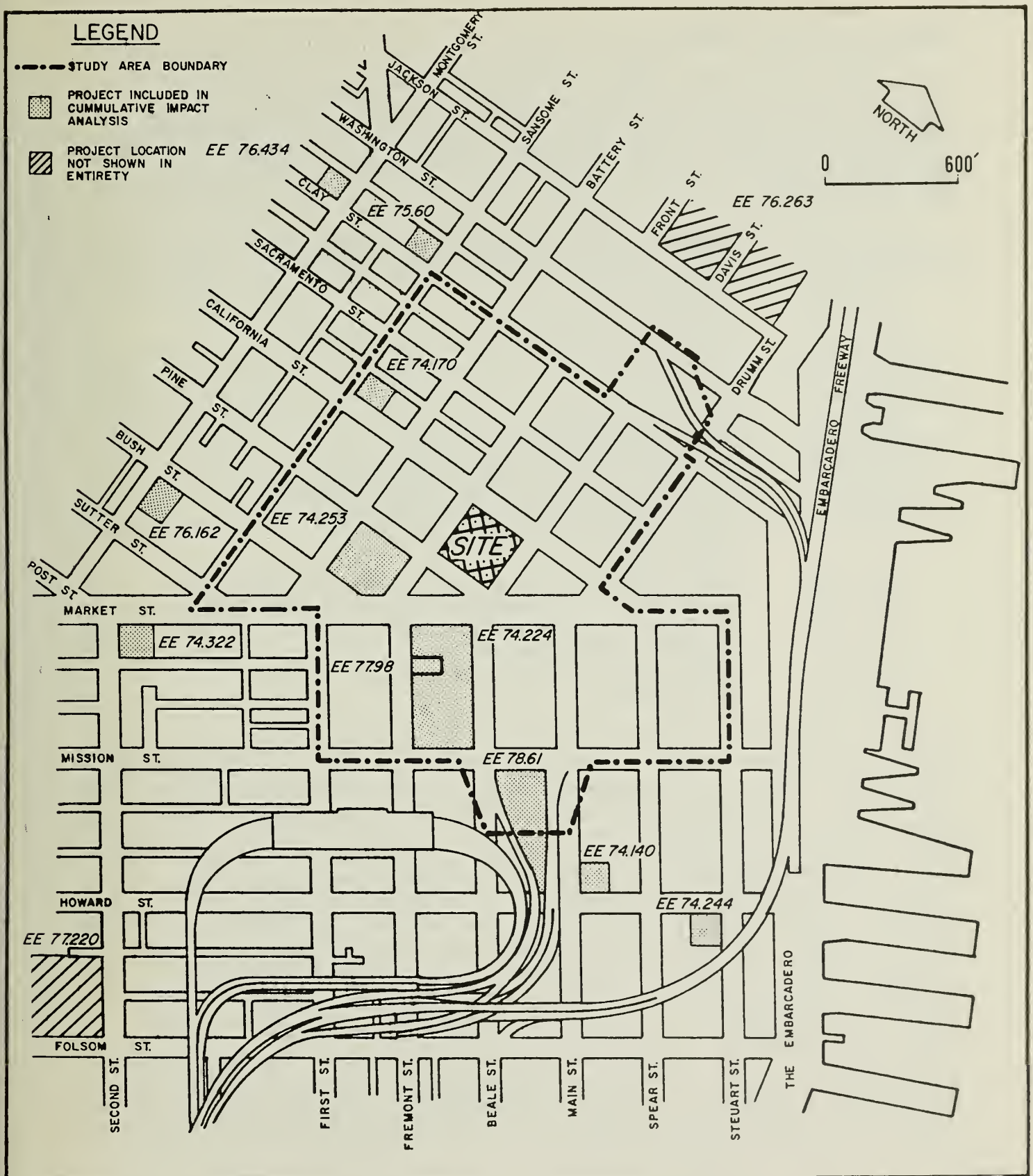


FIGURE I-1 LOCATION MAP OF PROJECTS
CONSIDERED IN CUMULATIVE
TRAFFIC & PARKING IMPACT
ANALYSES

CUMULATIVE TRANSIT ANALYSIS

The buildings which were subject to the cumulative transit analysis are in or near the Downtown Business District and are listed below by their Office of Environmental Review EIR file number and name. This list includes buildings which would not have an impact on traffic patterns in the project area, and so were not evaluated in the traffic analysis, but which might have impacts on transit ridership.

EE 74.140	Howard and Main Sts. (northeast corner)
EE 74.170	Bank of Tokyo of California (California First Bank)
EE 74.224	333 Market St.
EE 77.98	333 Market St. addendum
EE 74.244	Parking Structure, Howard and Steuart Sts.
EE 74.253	444 Market St.
EE 74.322	595 Market St.
EE 75.60	505 Sansome St.
EE 76.162	180 Montgomery St.
EE 76.263	Golden Gateway Center Phase III
EE 76.434	601 Montgomery St. (Negative declaration)
EE 77.220	Yerba Buena Center (Convention Center only)
EE 78.61	Pacific Gateway (Administrative Draft)
EE 74.71	State Compensation Insurance Building (Ninth & Market Sts.)
EE 74.128	Bank of America Data Center (Eleventh & Market Sts.)
EE 77.220	775 Market St. Office Building (Yerba Buena Center)
EE 77.157	Hibernia Bank (California & Front Sts.) Four Embarcadero Center
EE 78.207	Federal Reserve Bank (Market & Main Sts.)
EE 78.334	One Sansome St.

Afternoon peak-hour ridership, exclusive of the buildings listed above, was projected by TJKM from 1978 to 1981 base levels by using a growth factor for each transit agency. The projections were based on information gathered from each agency. For SamTrans and Southern Pacific Railroad (SPRR), SamTrans demand projections were used. Mr. L. Stueck of SamTrans supplied the demand projections for average daily and total yearly patronage for the years from 1978 to 1985 for the block of routes that include the mainline routes. A SamTrans projection of SPRR ridership from San Mateo County was also supplied. The percent increase per year for SamTrans and SPRR were calculated from this data. For Golden Gate Transit, the systemwide percent per year increase stated on Page 4-1 of the "Final EIR on Proposed Toll and Fare Increases" (dated July 1978) was used. For BART and A-C Transit the daily ridership for years 1974 through April 1978 was used to project a growth trend. The patronage data was taken from "BART Impact Project - Traffic Survey Series" A-43 to A-50 (October 1974 to April 1978). The growth trend was projected. A total percent increase from 1978 to 1981 was calculated for A-C and BART separately. For Muni, the systemwide increases projected by the P-O-M study (Wilbur Smith and Assoc., 1975) were compared to the 1975 data to develop a percent per year increase.

The above growth factors were assumed to reflect total growth (1978 to 1981). An adjustment similar to the adjustment made for traffic growth (i.e. relating the growth in transit ridership to the projected office space increases) was

made. The growth factors were then recalculated to reflect growth exclusive of the buildings listed above. In this case, the office space included in the cumulative projects was assumed to account for 77% of the total growth.

The cumulative ridership from the listed projects was added to the 1981 base ridership thus determined, and the 101 California St. ridership was added to the resulting totals. The total ridership increase on Muni cannot be reliably disaggregated on a line-by-line basis, because insufficient data is available on the residences and mode-of-travel preferences of individual tenant employees and trip origins and destinations of anticipated retail customers and business clients (C. Kinzel, Traffic Engineer, TJKM, letter communication, 7 May 1979). This letter is available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319.

Analysis of the demand-to-capacity ratios was made including known planned expansion of capacity for each transit agency. Thus, the only changes made between 1978 capacity and 1981 capacity were the previously defined changes on BART, Muni and the Golden Gate Transit Larkspur Ferry. None of the other capacities were increased, since no documented (definite) projected increases could be obtained. The capacity increases were assumed to be 7,390 persons per hour total for Muni; 1,620 persons per hour (1,080 seats per hour) total for BART; and 750 persons per hour total for Golden Gate Transit on the Larkspur Ferry only.

APPENDIX J: ITEL EMPLOYEE TRAVEL DEMAND

A questionnaire was distributed to all San Francisco employees of ITEL Corporation to determine their current modes of transportation to work at One and Two Embarcadero Center and their expected modes of transportation to 101 California St. Of the 650 questionnaires distributed, 480 (74%) were returned in a usable form. 266 of those responding were executives and professionals and 214 were administrative and clerical workers.

Of the total employees responding to the questionnaire 88% arrive in the hour between 8:00 a.m. and 9:00 a.m. with peak arrivals at 8:00 a.m., and 85% depart in the hour between 5:00 p.m. and 6:00 p.m. with peak departures at 5:00 p.m. Of the clerical and administrative ITEL employees, 57% live in San Francisco, 21% in the East Bay, 14% in the North Bay, and 8% on the Peninsula. Of the executive and professional employees, 35% live in San Francisco, 32% in the East Bay, 16% in the North Bay and 17% on the Peninsula (see Table J-1). Approximately 24% of the clerical and administrative employees and 67% of the executive employees now drive their own cars to work. Anticipated changes in travel modes derived from responses to the questionnaire indicate that 54% of the executive employees and 12% of the clerical employees would continue to drive to the proposed building (see Table J-2, p. 214).

Approximately 95% of the employees who drive, park within a radius of 2,000 ft. of One Embarcadero Center with a maximum walking time of ten minutes. Twenty-two percent of the executives and 44% of the clerical employees now use BART or Muni. In the proposed building, 25% of the executives and 44% of the clerical employees would expect to use BART or Muni for commuting to work. If a direct connection were provided from the new building to BART and the Muni Metro, an additional 2% of the employees indicated they would shift to BART or Muni Metro.

TABLE J-1: ITEL EMPLOYEES' AREAS OF RESIDENCE AND USUAL MODES OF TRANSPORTATION TO AND FROM WORK

Geographic Area	% of Clerical Employees	% of Executive Employees	Mode	% of Employees In Each Area By Mode*	
				Clerical	Executive
North Bay (Marin and Sonoma Counties)	14	16	Auto	43	76
			Bus	38	16
			Ferry	28	6
			Car Pool	0	2
Peninsula (San Mateo and Santa Clara Counties)	8	17	Auto	56	94
			SP	6	3
			SamTrans	0	0
			BART**	38	3
East Bay (Alameda and Contra Costa Counties)	21	32	Auto	20	58
			Bus	40	15
			BART	35	24
			Car Pool	5	3
San Francisco Downtown/Northeast (East of Van Ness, North of Market St. to the Embarcadero & South of Market to 101)	11	8	Auto	28	58
			Muni	57	26
			Walk	15	5
			BART	0	5
			Car Pool	0	5
Northwest (Richmond, Marina and Western Addition)	24	22	Auto	17	60
			Muni	81	40
			Car Pool	2	0
Southwest (Sunset, Parkside, Mission, Ingleside, Excelsior, Twin Peaks, and Upper Market)	14	4	Auto	26	55
			Muni	63	45
			BART	11	0
Southeast (Potrero Hill, Bayview, Hunters Point, East and South of 101)	8	1	Auto	20	67
			Muni	40	33
			BART	40	0
TOTAL	100	100			

*Does not always sum to 100 because of rounding.

**For most, automobiles are used from home to the Daly City station.

SOURCE: TJKM, from questionnaires distributed to ITEL employees.

TABLE J-2: ITEL EMPLOYEES' CURRENT MODES OF TRANSPORTATION TO WORK AND EXPECTED MODES OF TRANSPORTATION TO 101 CALIFORNIA ST.

Mode of Transportation	EXECUTIVES (55% of Employees)		ADMIN/CLERICAL (45% of Employees)	
	To Existing Offices %*	To Project %*	To Existing Offices %*	To Project %*
Auto	67	54	24	12
Carpool	1	4	1.5	3
Muni	13	13	39	35
BART	9	12	15	18
AC Transit	5	7	8	10
SamTrans	0	0.5	0	2
Fran. Greyhound	0	0	0	1
Golden Gate bus	3	4	5	8
Golden Gate ferry	1	2	4	3
Tiburon ferry	0	0.5	0	2
So. Pacific	0.5	2	0.5	1
Walk	0.5	2	3	6

*May not sum to 100% due to rounding.

SOURCE: TJKM, from questionnaires distributed to ITEL employees.

APPENDIX K: SAN FRANCISCO AIR QUALITY

The Bay Area Air Quality Management District (BAAQMD) operates 2 air quality monitoring stations in San Francisco. The station closest to the site is located at 939 Ellis St., approximately 1.5 miles to the west. This station is located on the roof of a 9-story building. While measurements there show daily, seasonal and annual meteorological and air quality trends, it is not clear how well the measurements represent conditions at street level near the station or elsewhere in the City.

Much of San Francisco is generally upwind of major pollutant sources such as industrial areas, airports, freeways, and other urban activities. San Francisco contributes to its own and other Bay Area cities' air quality problems, rather than receiving pollutants from other areas. Calm wind conditions, which occur approximately 25% of the time on an annual basis, lead to stagnation in the airshed; this is most common in the fall and winter months. At such times, the potential exists in the entire Bay Area for pollutants to become concentrated. Thus, air quality is both a local and regional problem.

The entire Bay Area Air Basin has been designated by the California Air Resources Board as a non-attainment area for ozone (oxidant), carbon monoxide, and particulate (i.e., the standards for these pollutants are now and are expected to continue being violated). A regional Air Quality Plan was recently adopted which establishes control strategies to attain and maintain the standards by 1987.

APPENDIX L: SAN FRANCISCO AIR QUALITY POLLUTANT SUMMARY

TABLE L-1: SAN FRANCISCO AIR POLLUTANT SUMMARY 1976-1978

STATION: 939 Ellis Street, San Francisco

POLLUTANT	STANDARD	1976	1977	1978
OZONE (O₃) (Oxidant)				
1 hour concentration (ppm)/a/				
Highest hourly average	0.08/b/	0.13	0.05	0.11
Number of standard violations		2	0	4
CARBON MONOXIDE (CO)				
1 hour concentration (ppm)				
Highest hourly average	35/b/	22	16	17
Number of standard violations		0	0	0
8 hour concentration (ppm)				
Highest 8-hour average	9/b/	11.0	8.9	9.4
Number of standard violations		4	0	1
NITROGEN DIOXIDE (NO₂)				
1 hour concentration (ppm)				
Highest hourly average	0.25/c/	0.25	0.21	0.30
Number of standard violations		1	0	4
SULFUR DIOXIDE (SO₂)				
24 hour concentration (ppm)				
Highest 24-hour average	0.05/c,d/	0.053	0.035	0.024
Number of standard violations/e/		1	0	0
TOTAL SUSPENDED PARTICULATE (TSP)				
24 hour concentration (ug/m ³)/f/				
Highest 24-hour average	100/c/	136	105	128
Number of standard violations/e/		8	1	1
Annual concentration (ug/m ³)				
Annual Geometric Mean	60/c/	55	41	42
Annual violation		No	No	No

/a/ ppm: parts per million.

/b/ Federal standard.

/c/ California standard.

/d/ The sulfur dioxide standard is considered to be violated only if there is a concurrent violation of the ozone (oxidant) or the suspended particulate standard at the same station.

/e/ Number of observed violation days (measurements taken approximately once every 6 days in 1978 and 1977; once every 3 days in 1976).

/f/ ug/m³: micrograms per cubic meter.SOURCE: Bay Area Air Quality Management District (formerly Bay Area Air Pollution Control District), Contaminant and Weather Summaries.

APPENDIX M: FUNDAMENTAL ACOUSTICAL CONCEPTS

The first part of this Appendix provides background information to aid in understanding the technical aspects of the noise sections. The second part discusses the noise measurement survey conducted for this report.

FUNDAMENTALS OF ENVIRONMENTAL NOISE

Three dimensions of environmental noise are important in determining subjective response. These are:

- 1) the intensity or level of the sound;
- 2) the frequency spectrum of the sound;
- 3) the time-varying character of the sound.

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or Hertz (Hz). Most of the sounds which we hear in the environment do not consist of a single frequency, but of a broad band of frequencies, differing in level. The quantitative expression of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into nine segments.

Many rating methods have been devised to permit comparisons of quite different sounds. Fortunately, the simplest method correlates with human response almost as well as the more complex methods (Parkin 1964 and Botsford 1969). This method consists of evaluating the content of a sound in accordance with a weighting that reflects the fact that human hearing is less sensitive at low frequencies and extreme high frequencies than in the frequency midrange. The weighting curve used is called "A" weighting, and the level so measured is called the "A-weighted sound level", or simply the "A-level".

The A-level in decibels is expressed as "dBA"; the appended letter "A" is a reminder of the particular kind of weighting used for the measurement. Typical A-levels measured in the environment and in industry are shown in Table M-1.

Although the A-level may adequately describe environmental noise at any instant in time, community noise level varies continuously. Most environmental noise includes a conglomeration of distant noise sources which creates a relatively steady background noise in which no particular source is identifiable. These distant sources may include traffic, wind in trees, industrial activities, etc. These noise sources are relatively constant from moment to moment, but vary slowly as natural forces change or as human

TABLE M-1: TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND IN INDUSTRY

	DECIBELS A-WEIGHTED	
CIVIL DEFENSE SIREN (100')	140	
JET TAKEOFF (200')	130	THRESHOLD OF PAIN
	120	
RIVETING MACHINE	110	ROCK MUSIC BAND
EMERGENCY ENGINE-GENERATOR (6')	100	PILE DRIVER (50')
DC-10 FLYOVER (700')		
SUBWAY TRAIN (20')	90	BOILER ROOM PRINTING PRESS PLANT
PNEUMATIC DRILL (50')	80	GARBAGE DISPOSAL IN HOME (3') INSIDE SPORTS CAR, 50 MPH
FREIGHT TRAIN (100')	70	
VACUUM CLEANER (10')		
SPEECH (1')		
	60	AUTO TRAFFIC NEAR FREEWAY LARGE STORE ACCOUNTING OFFICE
LARGE TRANSFORMER (200')	50	PRIVATE BUSINESS OFFICE LIGHT TRAFFIC (100') AVERAGE RESIDENCE
	40	MINIMUM LEVELS, RESIDENTIAL AREAS IN SAN FRANCISCO AT NIGHT
SOFT WHISPER (5')	30	
RUSTLING LEAVES	20	RECORDING STUDIO
	10	
THRESHOLD OF HEARING IN YOUTHS (1000-4000 Hz)	0	

NOTE: The distance (in feet) between the source and listener is shown in parentheses.

SOURCE: Charles M. Salter Associates, Inc.

activity follows its daily cycle. Superimposed on this slowly varying background is a succession of identifiable noisy events, which may include single vehicle passages, aircraft flyovers, etc.

To describe the time-varying character of environmental noise, the statistical noise descriptors L10, L50, and L90 are commonly used (Kittelson et al 1964, Griffiths et al 1968, Olson 1970, Scholes 1970, Gordon et al 1971). The L10, as used in this report, is the A-weighted sound level equaled or exceeded during 10% of a stated time period. The L10 is considered by noise engineers to be a good measure of the "average peak" noise. The L50 is the A-weighted sound level that is equaled or exceeded 50% of a stated time period. The L50 represents the median sound level. The L90 is the A-weighted sound level equaled or exceeded during 90% of a stated time period. The L90 is used to describe background noise.

As it is often cumbersome to describe the noise environment with these statistical descriptors, a single number descriptor called the Leq is becoming widely used. The Leq is defined as the equivalent steady-state sound level which in a stated period of time would contain the same acoustic energy as the time-varying sound level during the same time period. The Leq is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

During nighttime hours, exterior background noise levels are generally lower than daytime levels. Most household noise also decreases at night, and exterior noises become very noticeable. Further, most people are sleeping at night and are very sensitive to noise intrusion.

To account for human sensitivity to nighttime noise levels the descriptor Ldn (day-night equivalent sound level) was developed. The Ldn is the A-weighted average sound level in decibels during a 24-hour period with a 10 dB weighting applied to nighttime (10 p.m. to 7 a.m.) levels. For highway noise environments the Leq during the peak traffic hour is approximately equal to the Ldn.

The effects of noise on people may be listed in 3 general categories:

- 1) subjective effects of annoyance, nuisance, dissatisfaction;
- 2) interference with activities such as speech, sleep, learning;
- 3) physiological effects such as startle, hearing loss.

The sound levels associated with environmental noise, in most cases, produce effects only in the first 2 categories. Unfortunately, there is as yet no satisfactory measure of the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance, and habituation to noise over differing individual past experiences with noise (Stevens et al 1955).

An important parameter in determining a person's subjective reaction to a new noise is the existing noise environment to which one has adapted: the so-called "ambient" noise. "Ambient" is defined in the San Francisco Noise

Ordinance as "the all-encompassing noise associated with a given environment, being a composite of sounds from many sources, near and far" (S.F. Municipal Code 1972). In general, the more a new noise exceeds the previously existing ambient, the less acceptable the new noise will be judged by the hearers (Galloway et al 1969).

Knowledge of the following relationships will be helpful in understanding the quantitative sections of the EIR (Stevens et al 1955, Beranek 1954):

- 1) Except in carefully controlled laboratory experiments, an increase of only 1dB in A-level cannot be perceived.
- 2) Outside of the laboratory, a 3 dB increase in A-level is considered a just-noticeable difference.
- 3) A change in A-level of at least 5 dB is required before any noticeable change in community response would be expected.
- 4) A 10 dB increase in A-level is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse change in community response. Increases of more than 10 decibels would be expected to provoke complaints.

NOISE MEASUREMENT SURVEY

Noise levels were measured for 15 minutes at each of the locations shown on Figure 21 in the text with a Bruel and Kjaer (B&K) 4426 Noise Level Analyzer and B&K 4165 Condensor Microphone. The 4426 samples the noise environment every 0.1 second for the duration of the measurement and automatically calculates the desired statistical descriptors and the equivalent sound levels. The microphone was fitted with a windscreen and the system was calibrated before and after the survey with a B&K 4230 Sound Level Calibrator.

During the survey the sky was clear, the temperature was about 65 degrees Fahrenheit and winds were light to moderate ranging in speed from about 1 to 5 mph.

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APPENDIX N: ALLOWABLE BONUS FLOOR AREA

TABLE N-1: ALLOWABLE BONUS FLOOR AREA*

<u>Feature</u>	<u>Unit of Feature</u>	<u>Bonus Area per Area of Feature in C-3-0 District (sq. ft.)</u>	<u>Total Bonus (sq. ft.)</u>
Rapid Transit Proximity	Each linear foot by which walking distance to mezzanine of station is less than 750 feet.	50	30,000
Multiple Building Entrances	Each major entrance after the first	10,000	60,000
Sidewalk Widening	Each creditable square foot of widening	3	33,400
Shortened Walking Distance	Each linear foot by which walking distance between streets or alleys is reduced.	40	28,200
Plaza	Each creditable square foot of plaza area	10	163,900
		Total Bonuses	<u>315,500</u>
		Basic Allowable Floor Area	<u>1,058,750</u>
		Total Allowable Square Footage	1,374,250

*See the following page for more detailed information on bonus floor area calculations.

BONUS CALCULATIONS*Rapid Transit Proximity

Walking distance to BART station at Davis/Market from Davis St. entrance of 101 California St. is 150 ft.

$$(750 - 150) \times 50 = 30,000 \text{ sq. ft.}$$

Multiple Building Entrances

Three building entrances, plus three entrances from sidewalk to lot:

$$(7 - 1) \times 10,000 = 60,000 \text{ sq. ft.}$$

Sidewalk Widening

Sidewalk widening 20 feet in from lot line:

Sq. ft. of sidewalk x 3
Sq. ft. of planter area x 3

$$11,129 \text{ sq. ft.} \times 3 = 33,387 \text{ sq. ft.}$$

Shortened Walking Distance

Each foot of shortened walking distance from normal sidewalk route provides 40 sq. ft. of bonus area (see diagram).

<u>Route</u>	<u>Present</u>	<u>New</u>
1 - 5	550	400
3 - 7	550	490
4 - 7	430	400
2 - 5	460	335
2 - 6	490	320
1 - 4	430	320
2 - 4	245	185
	<u>3,155 ft.</u>	<u>2,450 ft.</u>

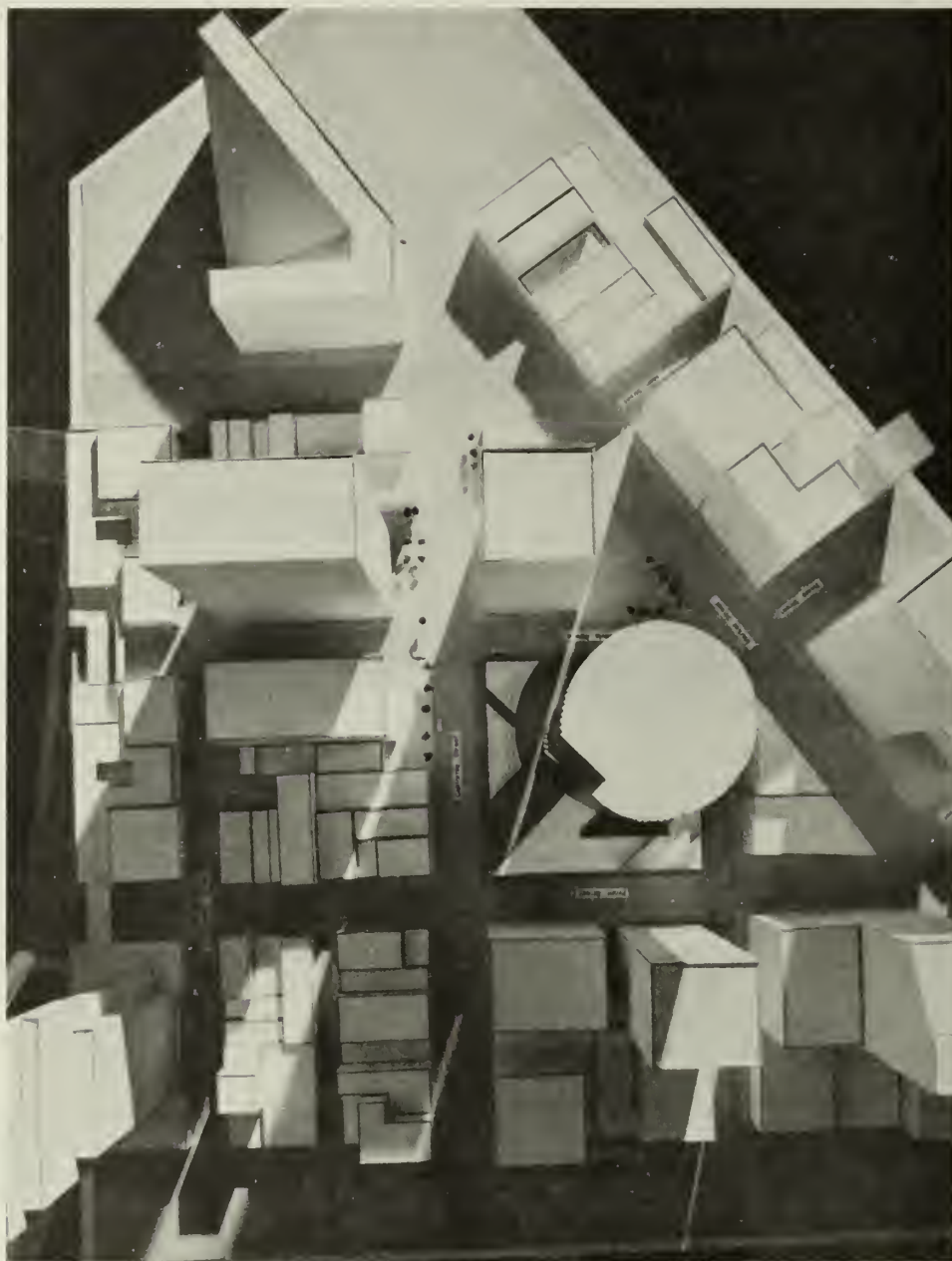
$$3,155 - 2,450 = 705 \times 40 = 28,200 \text{ sq. ft.}$$

Plaza

Plaza area within 20 ft. line allowed for sidewalk widening.

Sq. ft. of plaza	13,662 x 10 = 136,620
Sq. ft. of planters	2,730 x 10 = 27,300
	<u>163,920</u>

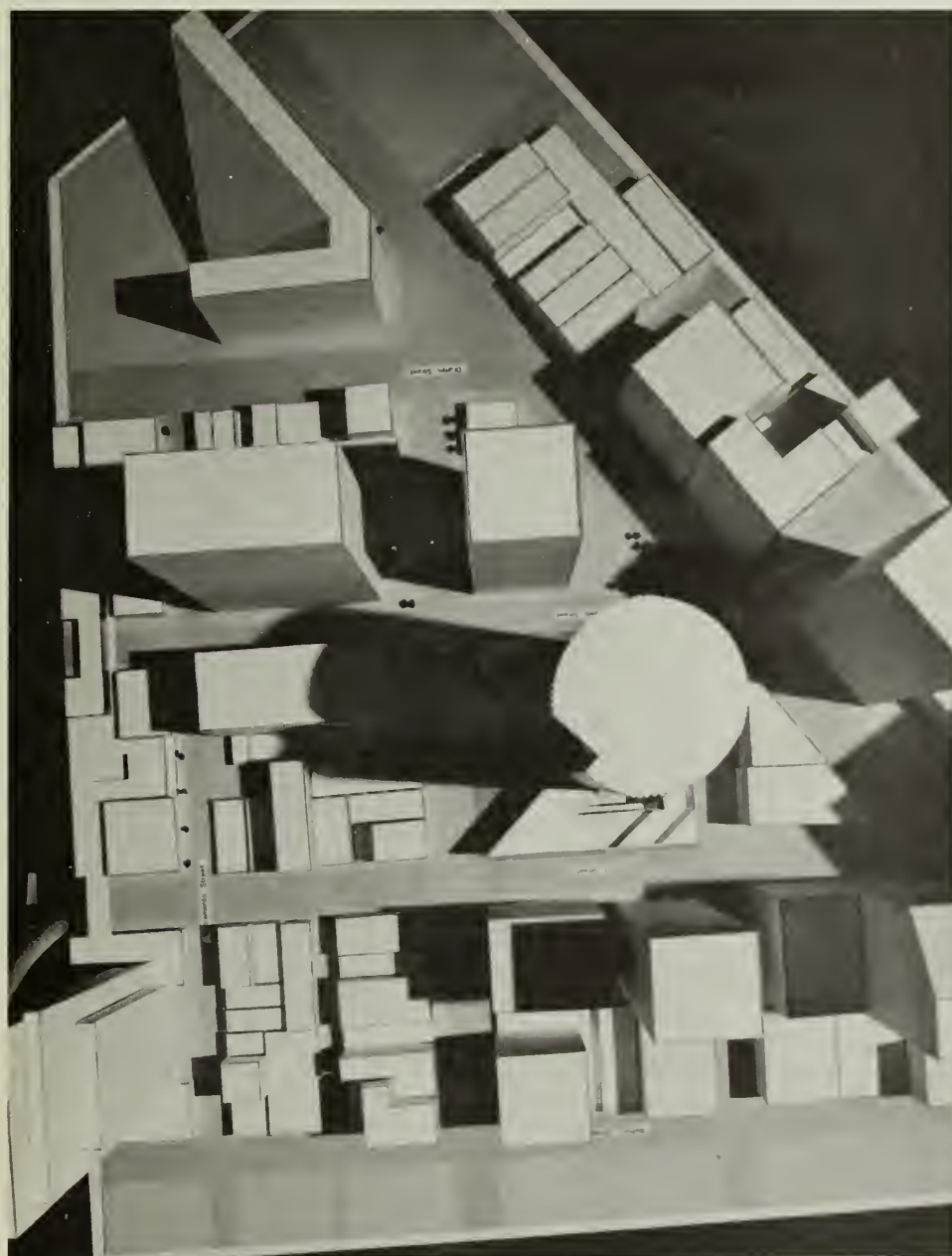
*More information on bonus floor area calculations for the proposed project is available at the Department of City Planning, Office of Environmental Review, 45 Hyde St., Room 319.



Mid-March and Mid-September
8 a.m. (Standard Time)



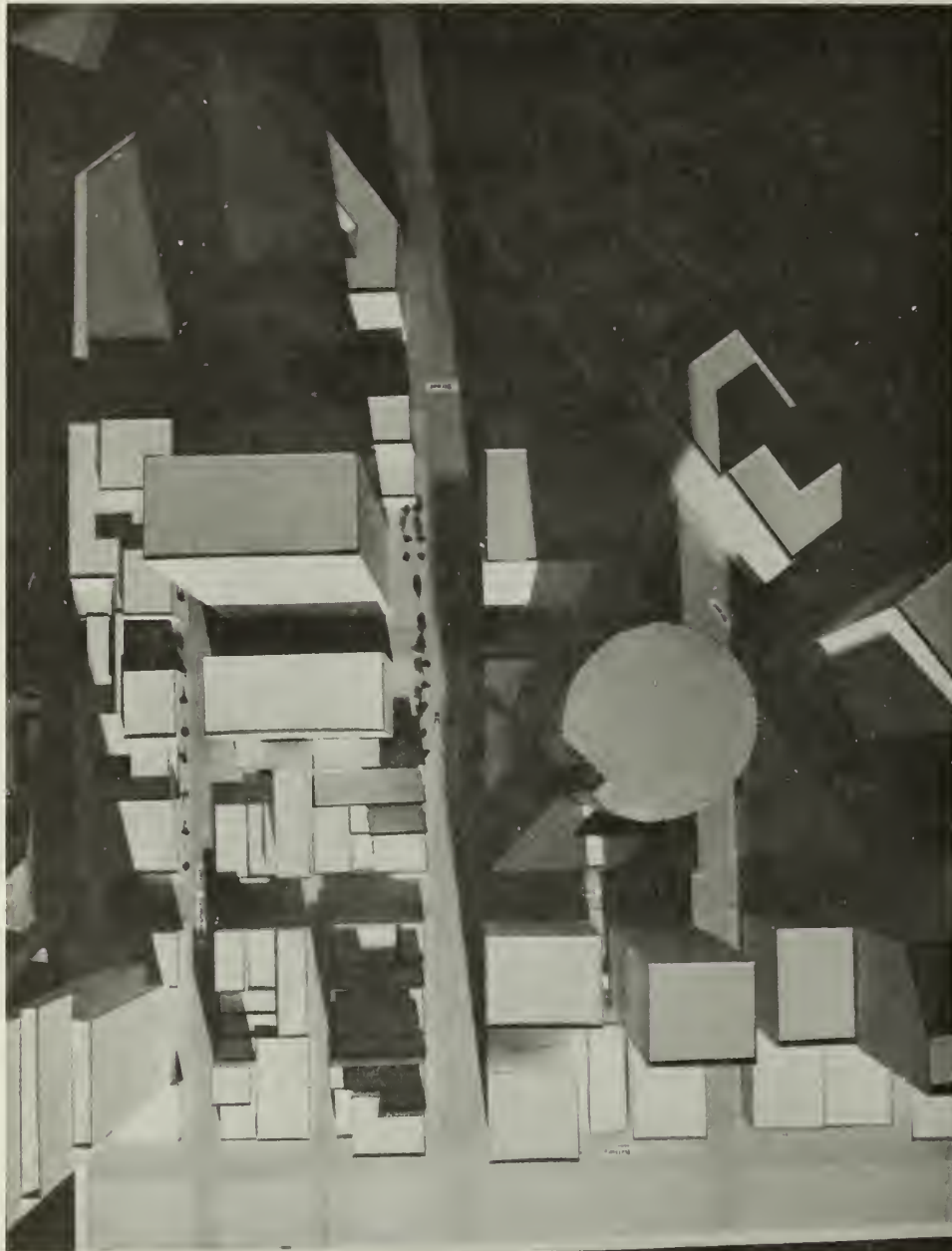
FIGURE O-1 PROJECTED SHADOW PATTERNS



Mid-March and Mid-September
12 noon (Standard Time)



FIGURE O-2 PROJECTED SHADOW PATTERNS



Mid-March and Mid-September
4 p.m. (Standard Time)



FIGURE O-3 PROJECTED SHADOW PATTERNS



Mid-December 8 a.m.
(Standard Time)

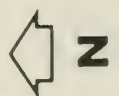


FIGURE O-4 PROJECTED SHADOW PATTERNS



Mid-December 12 noon
(Standard Time)

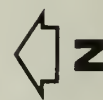


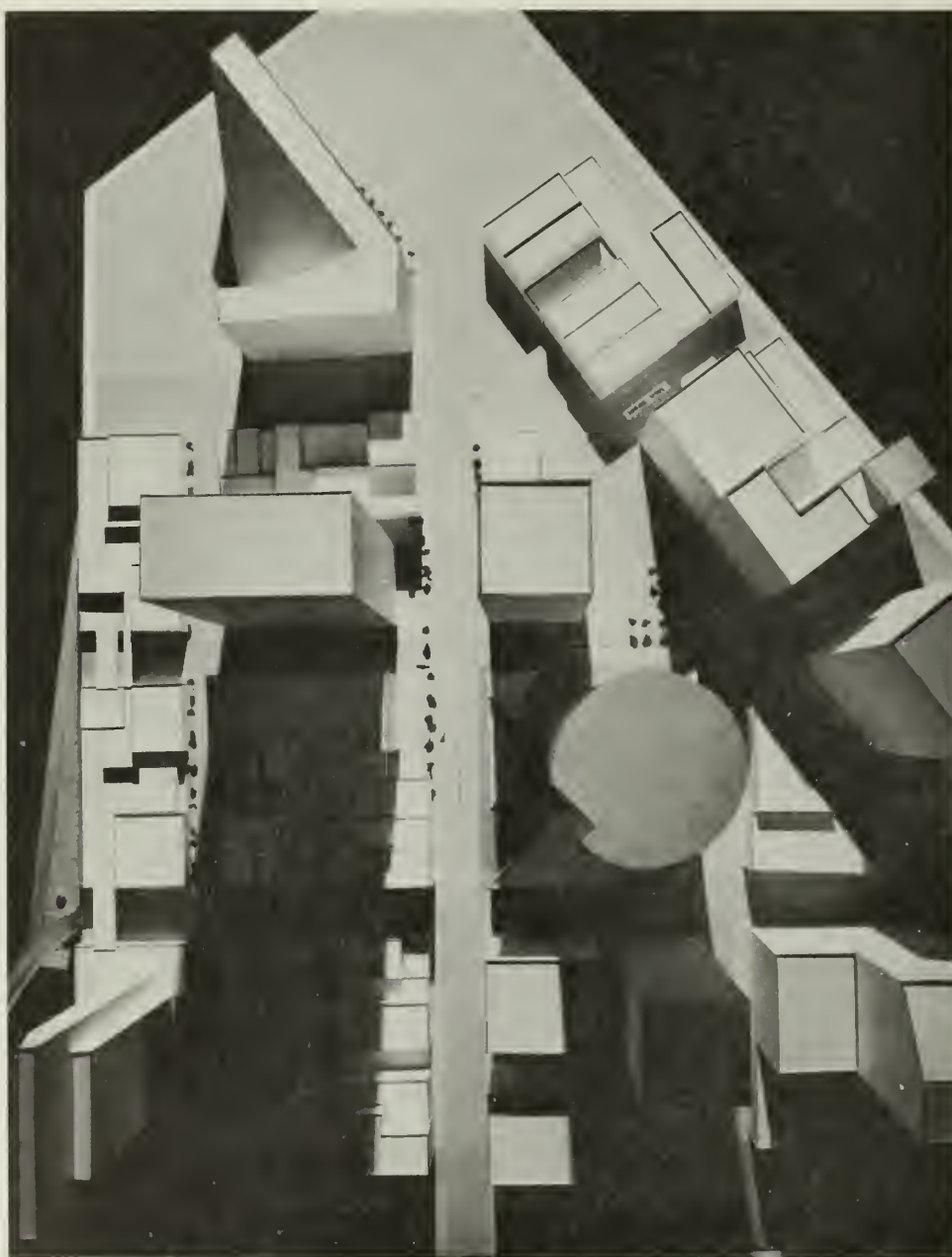
FIGURE O-5 PROJECTED SHADOW PATTERNS



Mid-December 4 p.m.
(Standard Time)



FIGURE O-6 PROJECTED SHADOW PATTERNS



Mid-June 8 a.m.
(Standard Time)



FIGURE O-7 PROJECTED SHADOW PATTERNS



Mid-December 4 p.m.
(Standard Time)

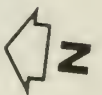
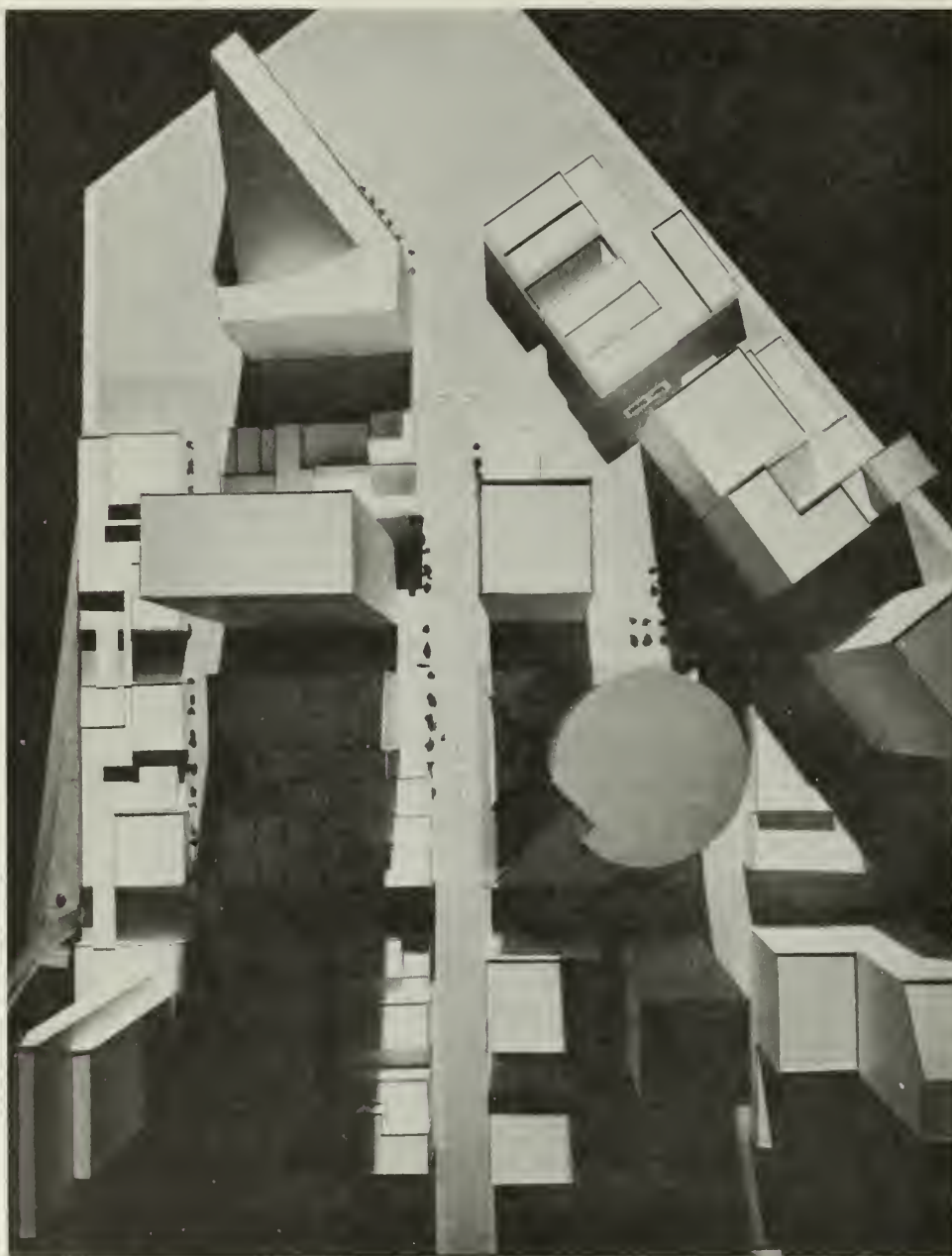


FIGURE O-6 PROJECTED SHADOW PATTERNS



Mid-June 8 a.m.
(Standard Time)



FIGURE O-7 PROJECTED SHADOW PATTERNS



Mid-June 12 noon
(Standard Time)

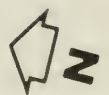
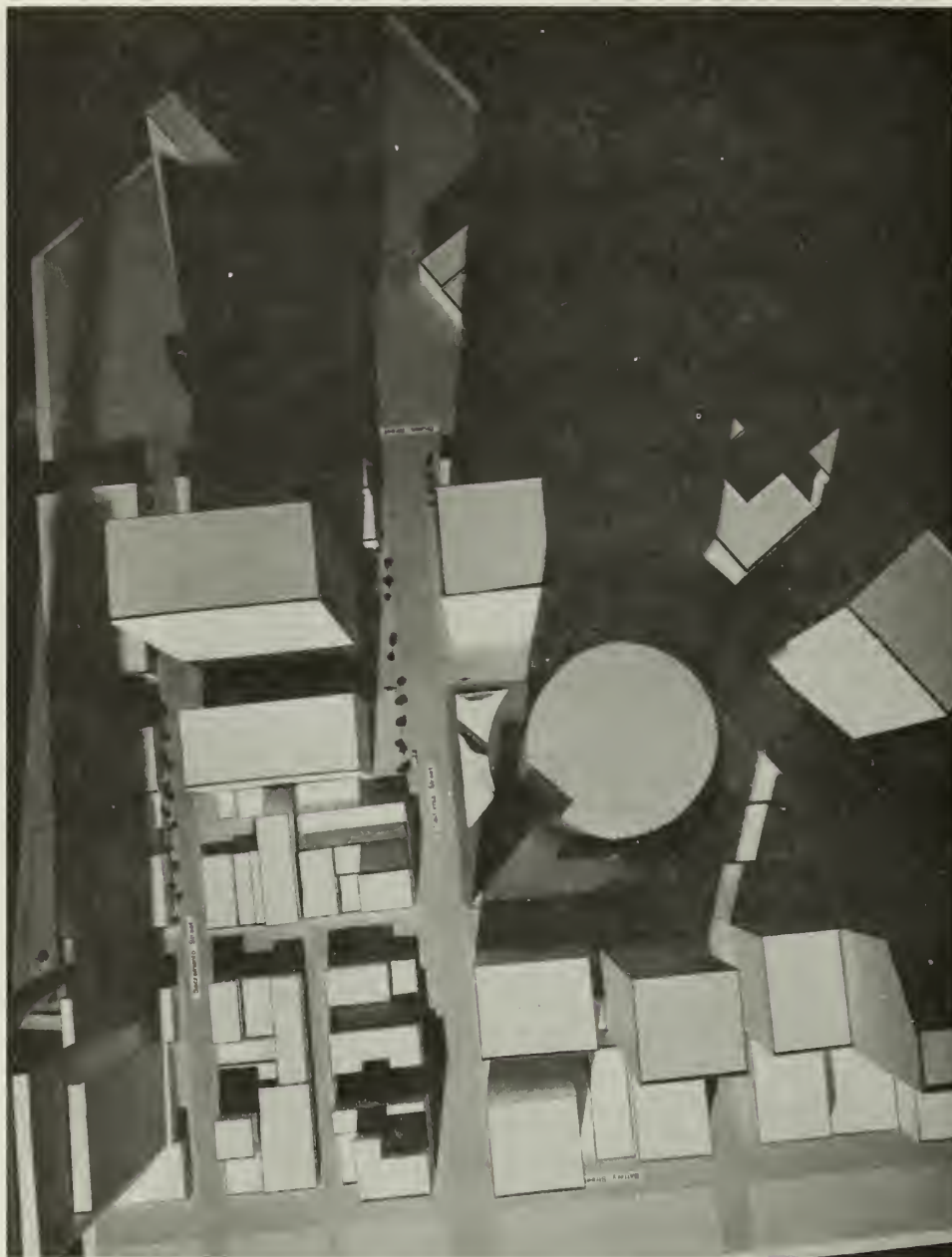


FIGURE O-8 PROJECTED SHADOW PATTERNS



Mid-June 4 p.m.
(Standard Time)

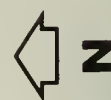


FIGURE O-9 PROJECTED SHADOW PATTERNS

APPENDIX P: MICROCLIMATE IMPACT STUDY ON THE
PROPOSED HINES BUILDING AT PINE
AND DAVIS STREETS

SAN FRANCISCO, CALIFORNIA
October 1978

ENVIRONMENTAL IMPACT PLANNING CORPORATION
319 Eleventh Street, San Francisco, CA 94103
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I. INTRODUCTION

Architects, engineers, and city planners designing urban structures are limited by the lack of information on wind effects brought on by the presence of these structures, such as discomfort for pedestrians and wind-caused mechanical problems with doors, windows, and ventilating systems. Once a structure is built, remedial measures (if they exist at all) are usually very expensive.

It is virtually impossible to anticipate by analysis or intuition, the winds that will be caused by a structure, since they are determined by very complex interactions of forces. Fortunately it is possible to predict the wind patterns and pressures around structures by testing scale models in a wind tunnel that can simulate natural winds near the ground. This allows the designer to foresee possible environmental and mechanical problems and alleviate them before the building is erected.

Data from wind tunnel tests can be combined with climatological data to analyze the effect of a proposed structure on pedestrians in terms of human comfort. The frequency distribution of wind strengths at pedestrian level, combined with temperature data and shadow patterns of the proposed structure and its surroundings, can be used to forecast comfort at pedestrian levels.

The research was conducted in three phases. The current wind environment of the site was measured in Phase 1. The impact on the wind environment caused by construction of the proposed building was evaluated in Phase 2. Phase 3 included analysis of the impacts which would result from a conventional square building on the site.

II. SUMMARY

A wind tunnel investigation was carried out on foam models of the site as it currently exists, and as it would exist with the proposed Hines highrise building. In addition, a wind analysis was conducted to determine the effects of a conventional square high-rise building on the site, rather than the round building as proposed.

The study results indicate that wind velocities around the project area under existing conditions vary from low to high, depending on location and wind direction. Four major areas of concern were identified during the study. These included the existing Mutual Life Building Plaza area, at the intersection of Market and Davis streets, the corners at the intersection of California and Davis streets, and two entrance areas to the proposed building; the Mutual Life Plaza was identified as the area of major concern.

Under existing conditions, in the Mutual Life Plaza, winds are considered to be moderately high. The proposed Hines Building would worsen wind conditions in this Plaza by combining with the existing Mutual Life highrise (on the corner of Pine and Davis streets) to form a funnelling effect under northwest wind conditions. Under these conditions maximum winds in the Plaza would be increased one to twenty percent. The proposed 8 and 10-foot planters would provide generally pleasant microclimatic areas within the new Plaza area created by the Hines Building. In addition, the effects of a conventional square highrise building on this site were evaluated. With a square building, conditions would be significantly worse in the Mutual Life Plaza area; very high winds could be expected under northwest wind conditions.

Three corners at the intersection of California and Davis streets were also identified as areas of concern, particularly under westerly wind conditions. These areas currently experience moderately high wind conditions. The proposed building with the planters would alter wind conditions somewhat, and increase the maximum windspeeds expected in this area by a few percent.

Lesser problems identified included the possibility of nuisance dust generation and litter collection at the entrances to the proposed building as a result of building geometry.

Localized mitigation measures to provide pleasant microclimates are presented. Significant structural changes in the design of the proposed building would be required to improve the microclimate of the Mutual Life Plaza. In general, this would require some type of three- to four-story structure along the western side of Davis Street, between California and Pine Streets.

III. BUILDING AND SITE DESCRIPTION

The proposed project would occupy the entire block bounded by California, Davis, Pine, and Front Streets. The southeast corner of the site is adjacent to Market Street (see Figure 1). The existing lowrise buildings on the site would be demolished in the near future. Two areas of significant pedestrian use would be affected by the proposed building; the Mutual Life Building Plaza on the corner of Davis and Market Streets (indicated as Area A in Figure 1), and the open areas to the south of the Union Bank Building (shown on Area D, also in Figure 1).

The existing highrises in the area (United California Bank, Union Bank, and the Mutual Life Building) are important in determining both the existing wind conditions and the effects of the proposed project. The existing Mutual Life highrise (occupying the southeast corner of the California/Davis Streets intersection in Figure 1) is particularly important in determining the wind effects in the Mutual Life Plaza. The model included several highrise buildings that are now under construction, including the 333 and 444 Market Street buildings and a building at the southwest corner of California and Front streets.

The building proposed for this site, designed by Johnson/Burgee Architects, would include a triangular lowrise section, approximately 100 feet high, which would encompass approximately one-half of the site. A cylindrical tower, approximately 600 feet in height, would extend from this lowrise section (see Figure 2). Two large planters, approximately 10 and 8 feet high are also proposed fronting California Street. The conventional square building had the same diagonal dimension as the round tower, as was oriented as shown in Figure 3.

IV. MODEL AND WIND TUNNEL FACILITIES

Model

A scale model of the proposed building was constructed of wood and foam by ESA. A model of the structures surrounding the area for a distance of several blocks was constructed of polystyrene and urethane foams.

The model scale was one inch equals 30 feet. The model of the surrounding city area was built to this scale with building configurations and heights obtained from the Sanborn maps at the San Francisco Department of City Planning.

Wind Tunnel Facilities

The Environmental Impact Planning Corporation boundary layer wind tunnel was designed specifically for testing architectural models. The working section is 7 feet wide, 43 feet long, and 5 feet high. Wind velocities in the tunnel can be varied from 3.5 mph to 13 mph. The flow characteristics around sharp-edged objects such as architectural models are constant over the entire speed range. Low speeds are used for photographing tracer smoke, high speeds for windspeed measurements.

Simulation of the characteristics of the natural wind is facilitated by an arrangement of turbulence generators and roughness upwind of the test section. These allow adjustments in wind characteristics to provide for different scale models and varying terrain upwind of the project site.

Measurements of windspeed around the model are made with a hot-wire anemometer, a device that relates the cooling effect of the wind on a heated wire to the actual windspeed. The flow above the city is measured by a Pitot tube connected to a micro-manometer. The Pitot tube and micromanometer measure directly the pressure difference between moving and still air. This pressure difference is then related to the actual windspeed. Flow visualization is achieved by use of floodlit smoke in conjunction with a 35-mm. camera.

V. TESTING METHODOLOGY

Simulation of Flow

The most important factors in assuring similarity between flow around a model in a wind tunnel and flow around the actual building are the structure of the approach flow and the geometric similarity between the model and the prototype. A theoretical discussion of the exact criteria for similarity is not included in this paper, but may be found elsewhere (Cermak 1966, or Cermak and Arya 1970).

The wind tunnel simulation of the round building proposed for the site normally presents "similarity" problems, since a smooth, round model does not simulate a smooth, round building. However, the proposed Hines Building design includes a "serrated" outer surface, and the serrated model surface would adequately simulate the actual building.

The variation of windspeed with height (wind profile) was adjusted for the scale of the model and the type of terrain upwind of the site. The profiles used were those generally accepted as adequately describing the flow over that type of terrain (Lloyd 1967).

Testing Procedure

The windflow characteristics of the site in its present state were investigated to ascertain the present wind environment. Windspeeds and wind directions at specified points throughout the site were measured and recorded. Wind direction was measured by releasing smoke at each point and recording the direction in which the smoke traveled. Windspeed measurements were made at the same points, at a scale height of five feet above the ground. A hot-wire anemometer probe is required to make these measurements within a fraction of an inch of the model surfaces. The probe is repeatedly calibrated against the absolute reading of a Pitot tube and micromanometer. Velocity readings close to the model are generally accurate to within 10 percent of the true velocity.

A similar technique was used to measure the wind environment with the proposed building in place. Measurements were taken around the building and on the adjacent streets.

Before and after each test run, a calibration measurement was made above the model. The purpose of these measurements was to relate the wind tunnel measurements to actual wind records from U.S. Weather Service wind instrumentation located on the Federal Building at 50 Fulton Street.

VI. TEST RESULTS AND DISCUSSION

Tests of windspeed and wind direction were conducted for north and northwest wind directions.

Measured windspeeds are expressed as percentages of the calibration windspeed, which corresponds to the actual windspeed at the San Francisco Weather Station. Thus a plotted value of 52 means that the measured windspeed is expected to be 52 percent of the windspeed recorded by the Westher Service when winds are from that particular direction.

The plotted values can be interpreted in terms of general "windiness" using the scale below. This scale is subjective and is based on information gathered from similar studies in San Francisco.

<u>Velocity</u>	<u>Percentage of calibration windspeed</u>
Low	0 - 19
Moderately low	20 - 29
Moderate	30 - 49
Moderately high	50 - 69
High	70 - 100
Very High	>100

It should be noted that the plotted values are not actual windspeeds but ratios. Thus a point having "very high" windspeed would still experience light winds on a near-calm day. Likewise, a point found to have "low" winds could experience significant winds on an extremely windy day.

Wind direction is indicated by an arrow pointing in the direction of flow. Where wind direction fluctuated, two arrows representing the principal flow directions were plotted. Areas of fluctuating winds are normally turbulent, as are areas of spiraling motion; the latter are denoted by curved arrows.

Northwest Wind

Northwest winds occur 12 to 39 percent of the time in San Francisco, depending on the season. (In meteorology, a northwest wind blows from the northwest.) Northwesterly and westerly

are the most frequent and the strongest winds at all seasons in San Francisco. Northwest winds exceed 13 miles per hour 35 percent of the time and 25 miles per hour 3 percent of the time in summer. Wind frequencies and speeds are lower in spring, fall, and winter.

West Wind

West winds occur between 15 and 40 percent of the time, depending on the season. They exceed 13 miles per hour 29 percent of the time and 25 miles per hour 7 percent of the time in summer. Wind strengths and frequencies are somewhat lower in spring, fall, and winter.

Results

a) Existing Conditions

Figures 1 and 4 present the predicted wind conditions around the site area for west and northwest wind conditions. While the wind speeds are generally moderate, moderately high wind conditions do exist in the Mutual Life Plaza (Area A). Moderately high wind conditions also exist at the intersection of California and Davis Streets (Area D) under westerly wind conditions (see Figure 4).

Area A is of particular concern since it includes a bus stop, BART entrance area, as well as benches for general use. The site is extensively used during lunch hour periods by employees from nearby buildings. The existing high winds in the Mutual Life Plaza apparently result from the existing Mutual Life highrise at the corner of California and Davis streets.

Existing high winds in Area D under westerly conditions result from the upwind "canyon" effect of existing high-rises along California Street.

b) Proposed Hines Highrise Building

The wind impacts at the proposed building are shown in Figure 2 for northwesterly wind conditions and in Figure 5 for westerly wind conditions. Northwesterly wind conditions are a primary concern for this project.

The existing moderately high wind conditions in the Plaza (Area A) would be worsened by the proposed building. Increases in maximum speed of 1% to 20% would occur during northwesterly winds. These increases would occur as a result of a funneling effect which would result between the existing Mutual Life Building on California and Davis Streets and the proposed Hines Building (see Figure 2). Area A is less impacted by the project during westerly winds, with some increases and decreases occurring.

In Area D the proposed building would shift the area of maximum windspeed slightly to the east, and also decrease the maximum velocity. The proposed 8 and 10-foot planters provide wind protection for pedestrians under westerly winds (Figure 5), but are less effective for northwesterly winds (Figure 2).

Two areas of minor concern on the project site have been identified. As a result of the geometrical configuration of the lowrise triangular portion of the building, and the highrise cylindrical portion, it appears that localized production of turbulent eddies would occur near the building entrances located in Areas B and C, as shown in Figures 2 and 5. Although the predicted windspeeds would be low, the nature of the flow would be such that trash and nuisance dust would tend to collect at the building entrances.

The wind environment at the Pine Street building entrance would remain at the low to moderate speeds now experienced at that location.

c) Conventional Square Highrise on the Proposed Site

For comparative purposes, a conventional square highrise of the same height and diagonal dimension as the proposed round Hines Building was tested. Results of this test are shown in Figures 3 and 6 for northwesterly and westerly conditions, respectively. As shown in Figure 3, conditions in the Mutual Life Plaza would be significantly worse with the square building. This occurs because a square building "traps" much of the wind against the flat face, forcing it downward where it then impacts pedestrian use areas. A round building generally represents a superior design since it allows wind to flow around its outer surface area rather than down its face.

d) Conclusions

Existing winds in pedestrian-use areas downwind of the proposed project site are currently moderately high to high. The proposed project will worsen these conditions, particularly during northwesterly wind periods. The round building proposed for this site is superior in design to a conventional square building insofar as it results in lower down-wind impacts.

With the current design, some localized turbulent eddy production would occur at the building entrances, such that trash and nuisance dust would tend to collect there.

VII. MITIGATION MEASURES

There are two types of mitigating measures to reduce windspeeds. The first involves major design changes to reduce winds near the project, such as different building orientations or changes in size or shape.

The second type of mitigation measure involves additions to the project that would provide local shelter for pedestrians. Small structures such as kiosks for newspaper or flower vendors, telephone booths, and shelters at bus stops can serve in this way. Similarly, street trees and other vegetation can function as windbreaks. Rows of street trees along Davis Street could mitigate the project's impact along that street.

The Mutual Life Plaza represents the area of main pedestrian comfort concern which would be affected by the project. Winds at this Plaza are already high; the proposed building would generally worsen conditions in this area. In order to significantly improve conditions in the Mutual Life Plaza a major windbreak would be required along Davis Street, between California and Pine Streets. This could probably only be accomplished by providing a three-to four-story structure along this area. It should be recognized that the round shape of the proposed building is itself a partial mitigating measure to problems in the Plaza when compared to the effects of a conventional square building on the site.

Wind tunnel tests were conducted on an earlier design which included 25 foot tall planters along California Street. The test showed a significant impact due to these massive planters at the California-Davis intersection, because of channelling of westerly winds. As a mitigation measure, the height of the planters was reduced to 8-10 feet, with the result that this channelling effect and its adverse impacts are avoided by the project as now proposed.

Some attention should be given to providing windbreaks at the building entrance to prevent local dust and trash nuisances.

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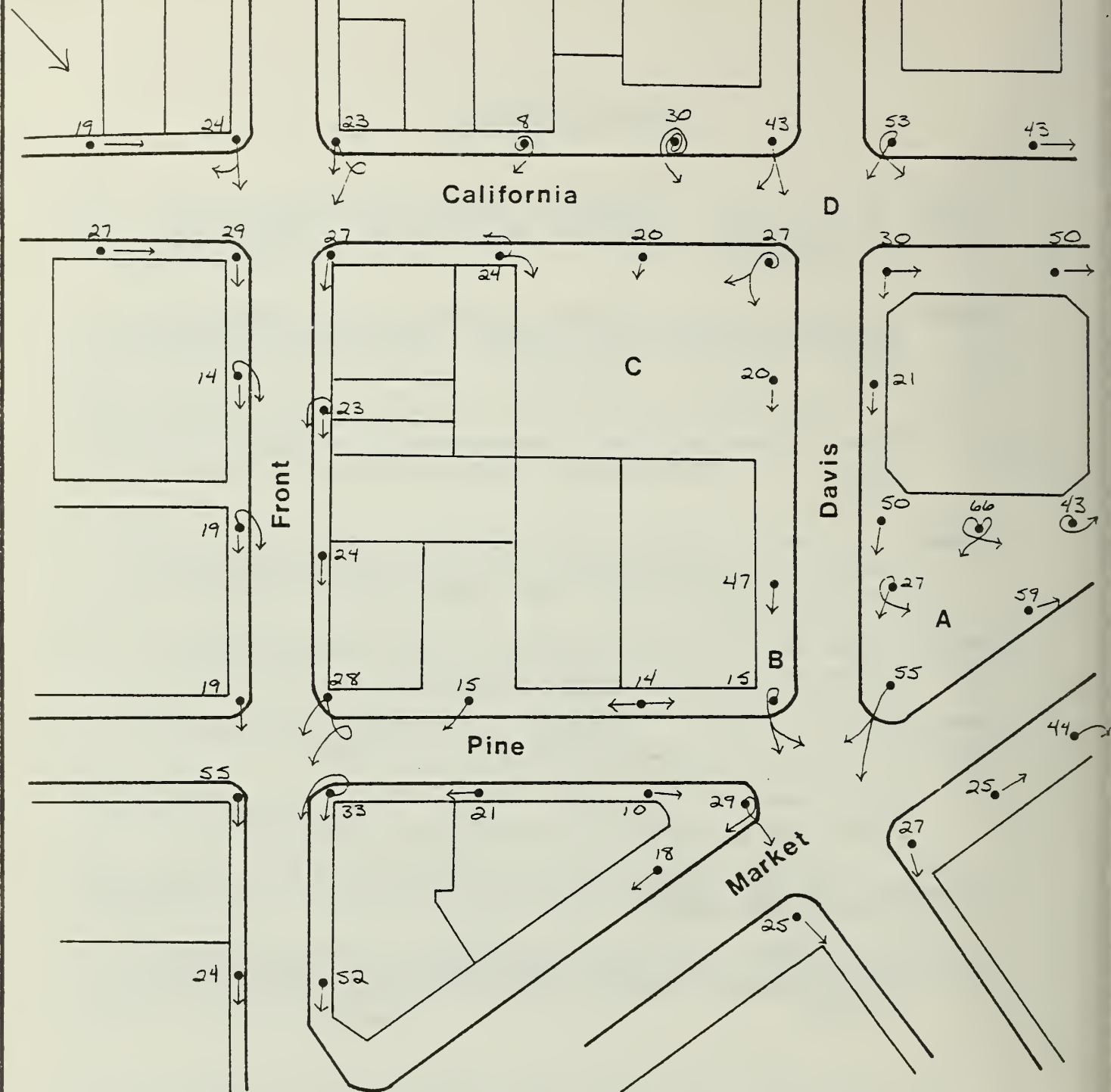
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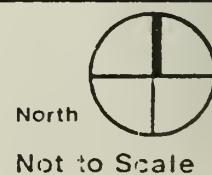
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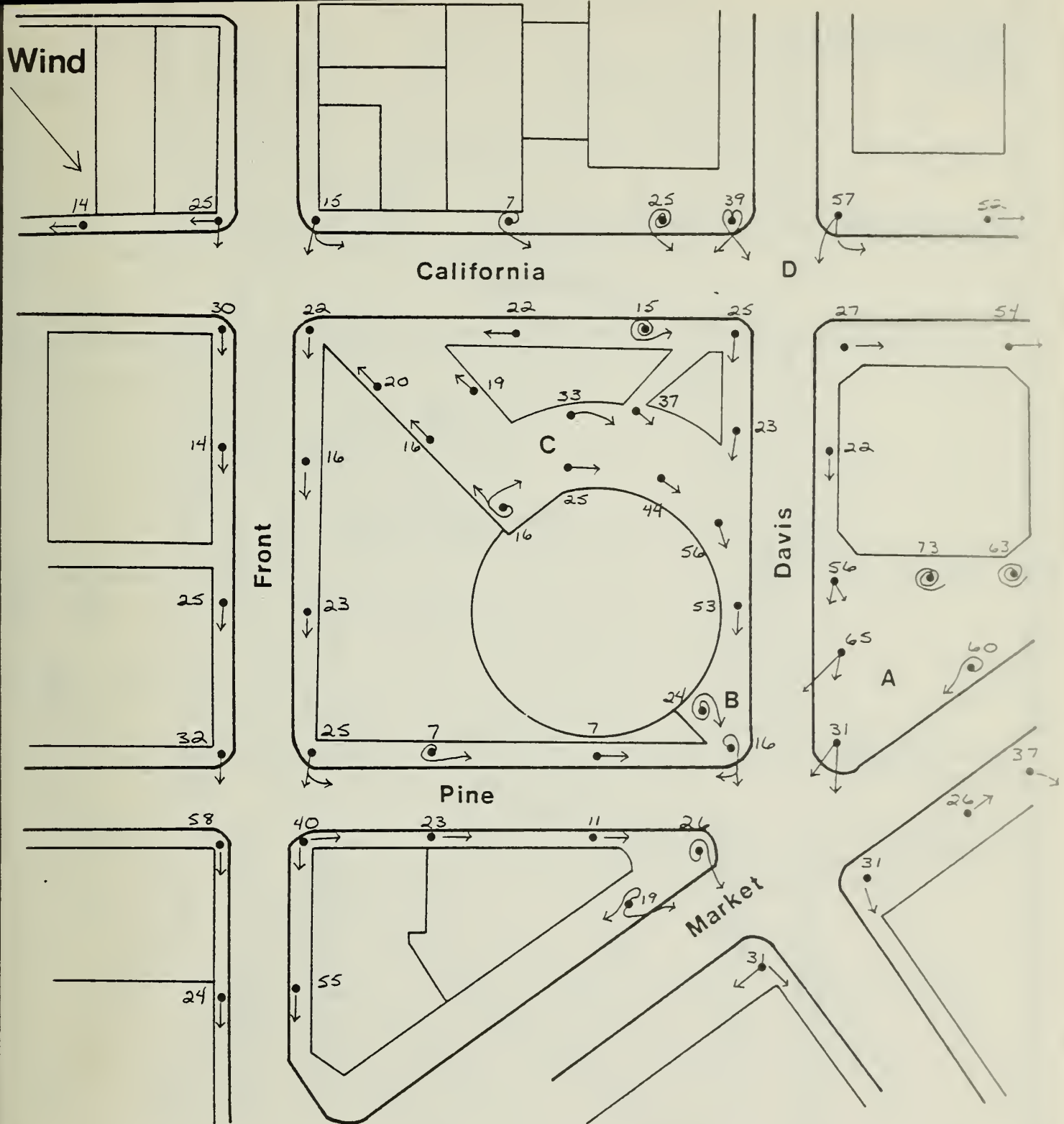
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Wind

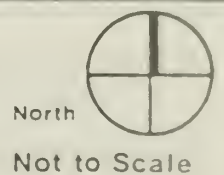


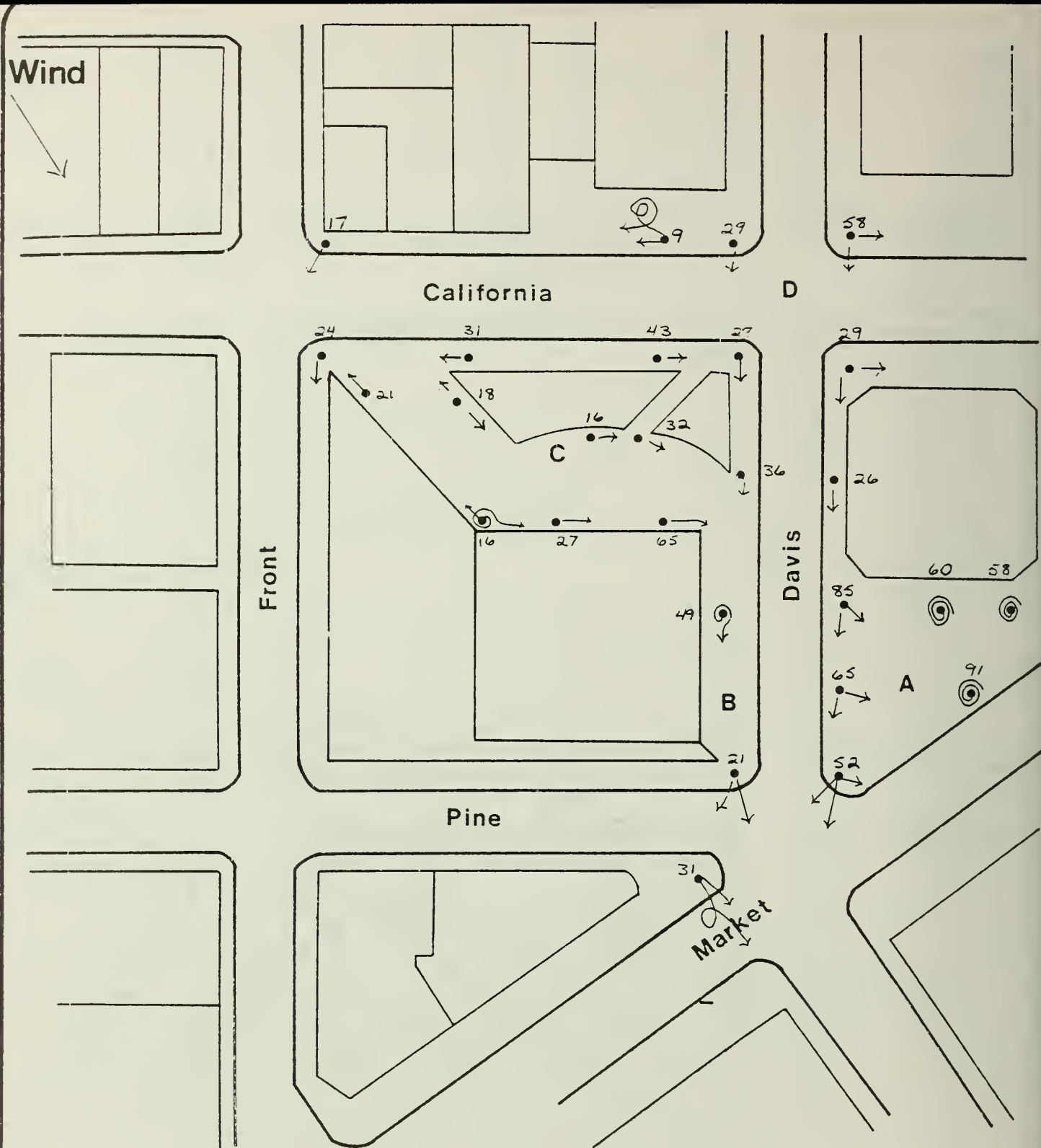
Proposed Site - Wind Flow Patterns
Northwest, Existing Site





**Proposed Site - Wind Flow Patterns
Northwest, Round Building
with Planters**





Proposed Site - Wind Flow Patterns
Northwest, Square Building
with Planters

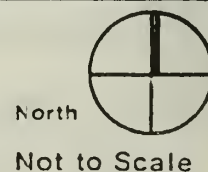
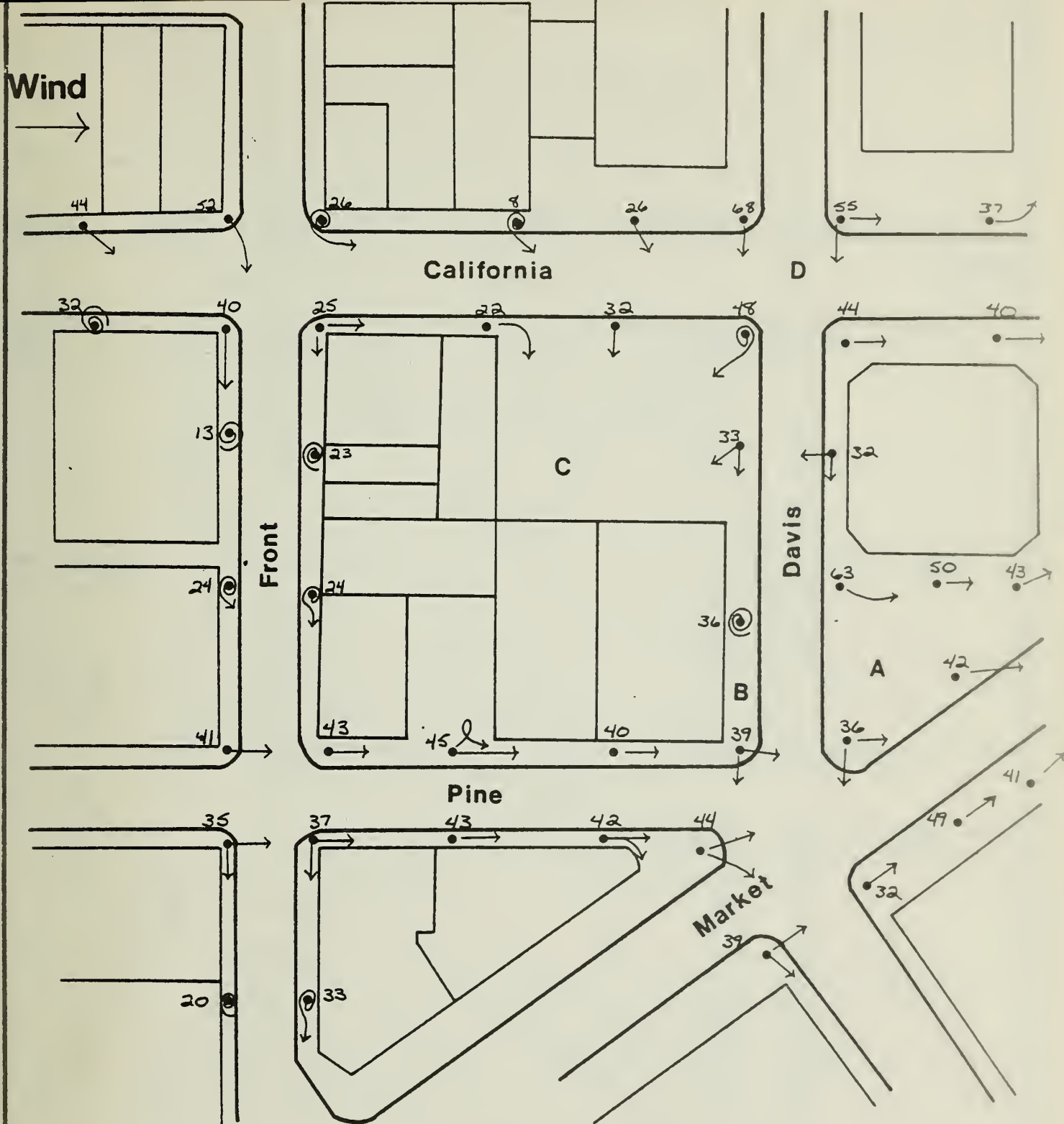
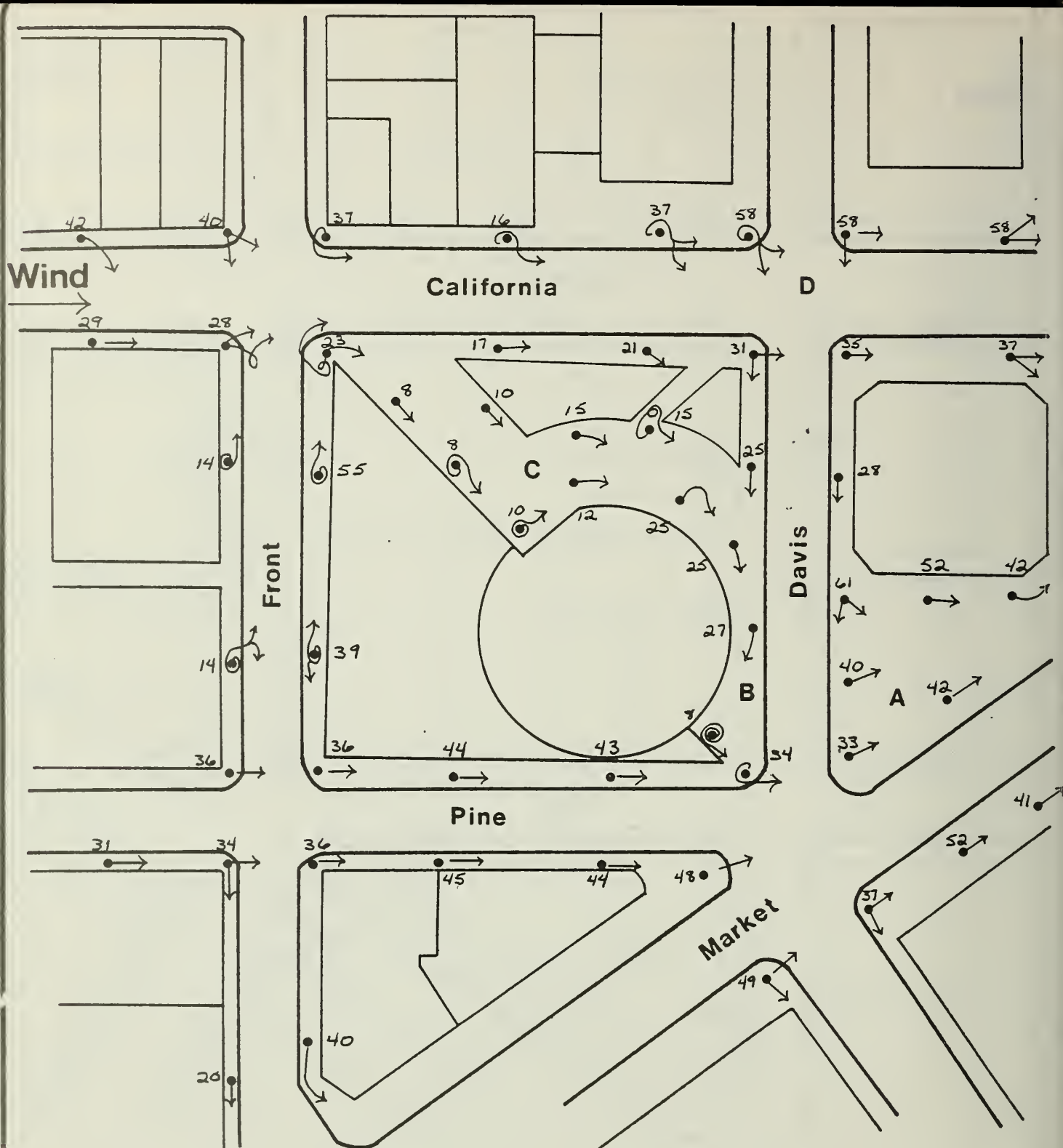


Figure No.3

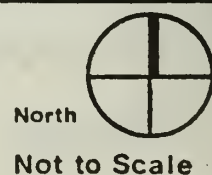


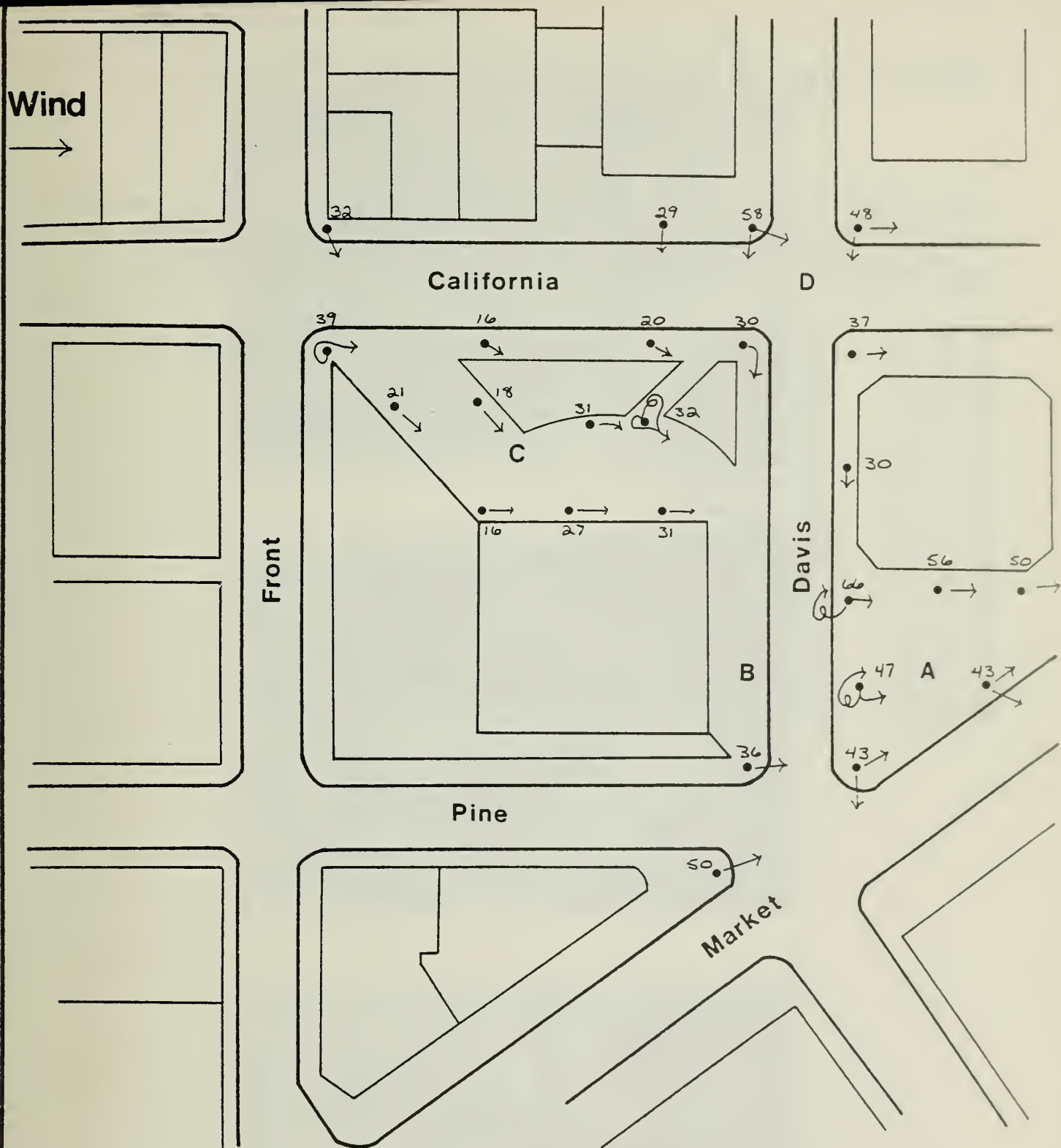
**Proposed Site - Wind Flow Patterns
West, Existing Site**

Figure No.4

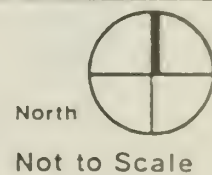


**Proposed Site - Wind Flow Patterns
West, Round Building with Planters**





**Proposed Site - Wind Flow Patterns
West, Square Building with Planters**

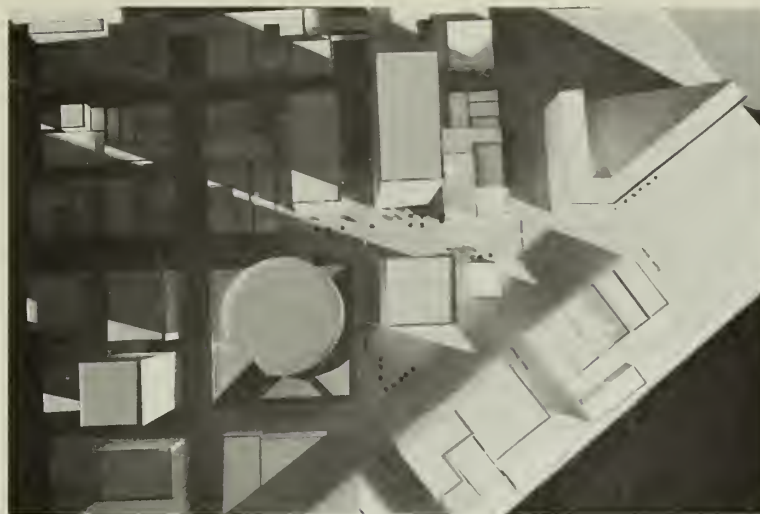


APPENDIX Q: IMPACT OF CUMULATIVE DOWNTOWN DEVELOPMENT ON COMMUNITY SERVICES AND UTILITIES

The buildings proposed, under construction, and recently built which were used to calculate the estimated cumulative totals for water and energy consumption and solid waste and wastewater generation for cumulative San Francisco development are listed below by their Office of Environmental Review EIR file number and name:

EE 74. 71	State Compensation Insurance Building (Ninth and Market Sts.)
EE 74.128	Bank of America Data Center (Eleventh and Market Sts.)
EE 74.140	Howard and Main Sts. (northeast corner)
EE 74.170	Bank of Tokyo of California (California First Bank)
EE 74.224	333 Market St.
EE 74.253	444 Market St.
EE 74.322	595 Market St.
EE 75. 60	505 Sansome St.
EE 76.162	180 Montgomery St.
EE 76.263	Golden gateway Center Phase III
EE 77. 98	333 Market St. Addendum
EE 77.220	Yerba Buena Center (Convention Center only)
EE 78. 27	101 California St.
EE 78. 61	Pacific Gateway
EE 78.207	Federal Reserve Bank (Market and Main Sts.)
EE 78.298	Crocker Bank (Kearny and Post Sts.)
EE 78.334	One Sansome St.

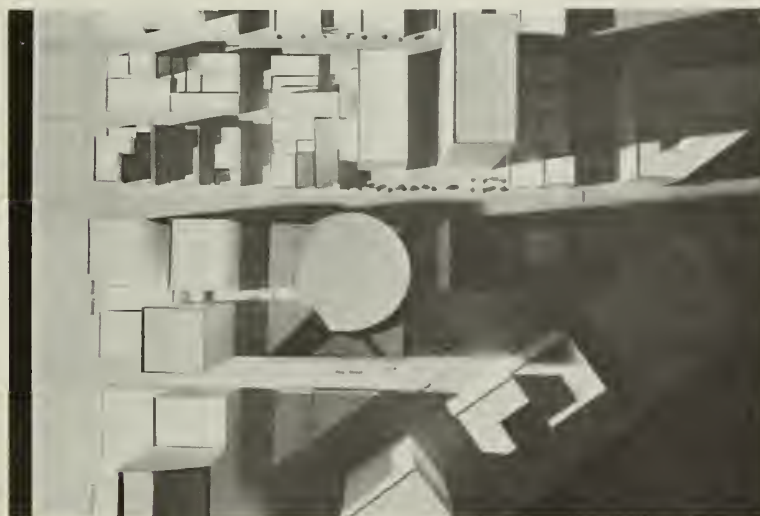
MID-MARCH AND MID-SEPTEMBER (STANDARD TIME)



8 a.m.



12 noon



4 p.m.



FIGURE R-1 SOUTH PLAZA ALTERNATIVE-PROJECTED SHADOW PATTERNS

MID-DECEMBER (STANDARD TIME)



8 a.m.



12 noon



4 p.m.



FIGURE R-2 SOUTH PLAZA ALTERNATIVE-PROJECTED SHADOW PATTERNS

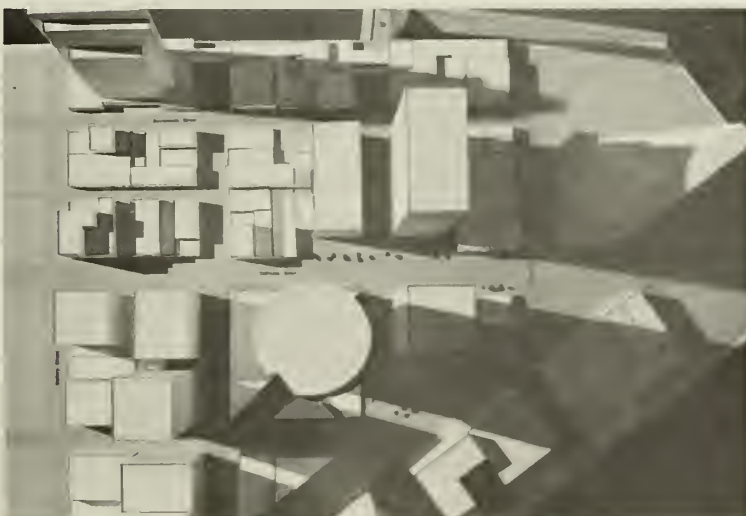
MID-JUNE (STANDARD TIME)



8 a.m.



12 noon



4 p.m.



FIGURE R-3 SOUTH PLAZA ALTERNATIVE-
PROJECTED SHADOW PATTERNS



